NEAR EAST UNIVERSITY

Faculty of Engineering

Department of Computer Engineering

MOUSE DESIGN AND CONTROL

**Graduation Project
COM- 400**

Student: Zafer Akarsu (991549)

Supervisor: Mr.Jamal Fathi

Nicosia-2003

ACKNOWLEDGMEND

" First, I would like to thank my supervisor Mr. Jamal Fathi for his invaluable advice and belief in my work and myself over the course of this Graduation Project...

Second, I would like to thank al my teachers who I have taken my cources during my studying in this university...

Third, I would like to thank Mr. Mehmet Gögebakan and his engaged Miss. Kadime Altingül...

Fourt, I would like to thank Mr. Metin Bölükbasi and his home friends and Mr. Sahin & Mr. Senol Yücesoy and Mr. Gökhan Küpeli...

Fifth, I would like to thank my family specially...

Sixth, I wold like to thank Miss Ayse Kocabıyık. But I am sorry because I do not know why I can not tell sometings to her. I tanked because in Snak Game I have used her blue eyes with logo that is " MAVIS"...

Seventh, I would like to thank old Programmer&Painter Mr. Zafer Kemal Akarsu..."

ABSTRACT

Today, we see mice of computer component and we know mice are work with serial port 1 and PS/2 port. Ok. we know whom use mouse for fast and drawing a picture perfectly but if a mouse has more than 20...functional buttons than will it work slowly perhaps we can not see this speed in cpu of personal computer but it will work slowly. I will give explanation about this serial port mouse and give example pratically in Borland Pascal test of how is it working..etc.

And I designed parallel mouse tha works with plarallel port (LPT1). May be it is first I do not know but I have understood this mouse will work faster than serial port mouse and more than 10... we can use functionally button in this parallel port mouse. And we will see how is parallel port mouse work with parallel port and how will we can use this mouse in game and menu of display.

We will see how can we control and test and use these mice parallel and serial in program languages with Basic and Borland Pascal...

TABLE OF CONTENTS

1.INTRODUCTION

1.1.Overview

Today if we have a personel computer or terminal computer of network system these Compu -ters have a lot of device and these devices have a task in the system of computer. I will not explain all of devices of computer.only I will give to some knowledge about I will explain to devices of computer with minimal required.

Computers need minimal requirement

- Main board
- Cpu
- Case
- Power pack
- Ram
- Flopy diriver for formatting
- Hard diriver for partitioning
- Display card
- keyboard
- Mouse
- Monitor
- Cables
- Cdrom
- System disk
- Port connection devices (parallel(lpt1),com port 1, com port 2 etc)

If we have these devices then we have a computer but we can use extra device in this system. for example we can use **Sound card,Tv card, Ethernet card, and Modem...etc.** I know all of these very important things for computer but **first:** I will explain about mouse for exaple; what for do we use mouse and which cases do we use and how does works mouse, which port does mouse use, what is the structure of mouse...etc. and **second:** I will explain about ports specially parellel and serial ports,and **third:** I will explain how can we controll these ports and mouse in software and how can we apply in software.

1.2 First Short Explanation About Mouse

We use the mouse for speed for exaple; if there is a software program and this program has a lot sections and these sections have a task.These sections may be regular or irregular in the program view and these sections have submenu sections too. There fore there is a important thing that is time for us that so when we want to choice one of sections in the program view when we try to use a keyboard then we will lost a lot ourtime and we will be ungry and program will work slowly. In here if we use the mouse then we will win a lot time and program will work fastly and we will not be ungry. This is very important avantage for use today.

We use the mouse for drawing. In this case mouse is very atvantagely from keyboard (pen is except in this case because we can use as a pecill at the display that so manoevre of pen is very higher than keyboard and after mouse) because during the drawing a picture or anything manoevre of mouse is beter than manoevre of keyboard.

In lot games sometime we can use mouse.In here manoevre of mouse may be beter than keyboard but in keyboard can use more than 1...10...functions in game.In here functionly keyboard is beter than mouse.(but as joystik thigs is except.)

But both of keyboard and mouse use serial port (ps/2,comA or comB). But serial ports work slowlier than parellel ports.

Keyboard and mouse connection with cable to ports but today there are unconectionless keyboard and mouse.In connectionless there is no trafic of cable and problem of move for example while we lie down we can controll to computer with mouse or keyboard.

1.3 Second Short Explanation About Ports

Ports are in the motherboard.there are kind of ports that Ps/2 port for keyboard or mouse, ComA and ComB serial ports, Parallel port (LPT1 printer port),Game &Audio port...etc.

We use these ports for using to some external device.For example; monitor uses to display cards ports for see informations,form of programs...etc.and mouse uses serial port comA or Ps/2 but with this port we can control eny device ore can use any except purpose and parallel port; this port is used by (Lpt1) printer but this port can use for except purpose by us too for example about this parallel port; we can control any device with this port and you will see in this studing a mouse can use parallel port and controllen in any software program by us.

1.4 Third Short Explanation About applying mouse and parallel port in software

For applying mouse and parallel port in software.we have to know to one more than program language.why did I say one more than because some program languages may be on

3

hardly and controll of the ports way may be hard in some program language and which is better than other we have to know. And we must to know pin cofiguration of ports.for example; which pin send and take to data and which pin graund and which pin active in port address and can it use and how can we send to data or take to data from the parallel ports and what is the data if we know like these then we will can create our device or controll any device we want., If we want to make to program in some known program language then we can use specially some commends.these commands are :

1-In basic

   1.1-Out.., (send to data to ports) or poke...

   1.2-Inp... (take to data from ports) or peek...

2-In Pascal

   2.1-port... (send to data to ports) or mem... or pointers

   2.2-a:=port...(take to data from ports) or mem or pointers

3-In c

   3.1-peek... (send to data to ports) or pointers

   3.2-a:=poke...(take to data from ports) or pointers

4-In Asm

   4.1-Out (send to data to ports)

   4.2-Inp (take to data from ports) or pointers...

I used basic and pascal program languages in my mouse control and in manual program. And this mouse uses parallel port (LPT1) Port address 378H - 37AH. At same time for this mouse we can

4

connect to radio signal send and take and we can controll this mouse and at the moment this mouse is dialerly, and data input is controlled by like with push button.

2.MOUSE

2.1. History of Mouse

The mouse was invented in 1964 by Douglas Englebart, who at the time was working at the Stanford Research Institule (SRI), a think thank sponsered by Stanfort Universty. The mouse was officially called an "X-Y Position indicator for a Display System." Xerox later applied the mouse to its revolutionary Alto computer system in 1973. At the time, unfortunately, these system were exprimental and used purely for research.

In 1979, several people from Apple, including Steve Jobs, were inited to see the Alto and the software that run the system. Steve Jobs was blown away by what he saw as the future of computing, which included the use of the mouse as a pointing device and the graphical user interface it operated. Apple promptly incorporated these features in to what was to become the Lisa computer and Iured away 15 to 20 Xerox scientists to work on the Apple system.

Although Xerox released the Star 8010 computer that used this technology in 1981, it was expensive, poorly marketed, and perhaps way ahead of its time. Apple released the Lisa computer, which was their first system that used the mouse, in 1983. It also was not a runaway succes, şargely because of its $10000 list price, but by then jobs already had Apple working on the low-cost successor to the Lisa, the Macintosh. The Apple Macintosh wasintroduced in 1984; although it was not an immediate hit, the Macintosh has been steadily growing in popularity since that time.

Many credit the Macintosh with inventing the mouse and GUI, but as you can see, this technology was actually borrewed from others, including SRI and Xerox. Certainly the

Macintosh, and now Microsoft Windows and OS/2, have gone on to popularize this interface and bring it to the legion of PC-compatible system.

Although the mouse did not catch on quickly in the PC-compatible marketplace, today the GUIs for PC systeme such as Windows and OS/2 virtually demand the use of a mouse. Because of this, it is common for a mouse to be sold with virtually every new system on the market.

Mice come in many shapes and sizes from many different manufacturers. Some have taken the standard mouse design and turned it upside down, creating the trackball. In the trackball devices, you move the ball with your hand directly rather than with the unit itself. IBM even produced a very cool mouse/trackball convertible device calledthe trackpoint (p/n 1397040). The trackpoint could be used as either a mouse (ball side down), or as a track ball(ball side up). In most cases, the dedicated trackballs have a much larger ball than is found on a standard mouse. Other than the orientation and perhaps the size of the ball, a trackball is indentical to a mouse in design, basic function, and electrical interface.

The largest manufacturers of mice are Microsoft and Logitech. Even though mice may come in different varieties, their actual use and care differ very little. The standard mouse consists of several components:

- A housing that you hold in your hand and move around on your desktop
- A roller ball that signals movement to the system
- Buttons (usually two or more) for making selections
- A cable for connecting the mouse to the system
- An interface connector to attach the mouse to the system

The housing is made of plastic and cosists of very few moving parts. Buttons are on top of the housing. Where your fingers normally reside. There may be any number of buttons, but in the Pc world there are typically only two. If additional buttons are on your mouse, speciallized software is required for them to operate. On the bottom ot the housing is a small rubber ball that rotates as you move the mouse across the tabletop. The movements of this rubber ball are translated into electrical signals transmitted to the computer across the cable. Some mice use a special optical sensor that detects movement ovr a grid. These optical mice have fallen into disfavor because they work only if you use a special grid pad underneath them.

The cable can be any length, but is typically between four and six feet long.(If you have a choice on the length of cable to purchase, go for longer one. This allows easier placement of the mouse in relation to your computer.)The connector used with your mouse depends on the type of interface you are using. Tree basic interfaces are used, with a fourth combination device possible as well.

After the mouse connected to your computer, it communicates with your system through the use of a device driver, which can be either separately loaded or build into the system software. For example, no separate drivers are needed to use a mouse with Windows or OS/2, but using the mouse with mouse DOS-based programs requires a separate driver to be loaded. Regardless of whether it is build in, the driver translates the electrical signals sent from the mouse into positional information and information that indicates the status of the buttons.

Internally, a mouse is very simple as well. The ball usually rests against two rollers, one for translating the X-axis movement and the other for the Y-axis. These rollers are usually connected to small disks with shutters that alternately block and allow the passageof light. Smoll optical sensors detect movement of the wheels by watching an internal infrared light blink on and off as the shutter wheel rotates and "shops" the light.

8

These blinks are translated into movement along the axes. This type of setup is called an **optpmechanical mechanism** and is by far the most popular in use today.
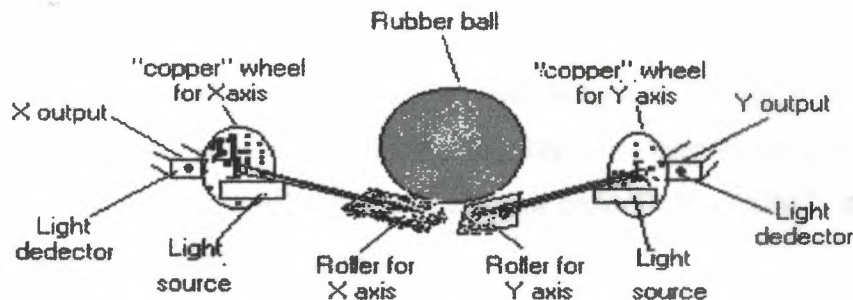
figure 2.1: Typical opto-mechanical mouse mechanism.

2.2. MOUSE INTERFACE TYPES

Mice can be connected to your computer throught the following three devices:

- Serial interface
- Dedicated motherboard mouse port
- Bus-card interface

2.2.1. Serial

A popular methodof connecting a mouse to most older PC-compatible computer is through a serial interface. As with other serial devices, the connector on the end of the mouse cable is either a 9-pin or 25-pin male connector. Only a couple of pins in the DB-9 or DB-25 connectors are used for communications between the mouse and the device driver, but the mouse connector typically has all 9 or 25 pins present.

Because most Pcs come with two serial ports, a serial mouse can be plugged into either COM1: or COM2: The device driver, when initializing,searches the ports to determine the one to which the mouse is connected.

Because a serial mouse does not connect to system directly, it does not use sytem resources by itself. Instead, the resources used ae those used by the serial port to which it is connected. For example, if you have a mouse connected to COM2:, it most likely uses IRQ3 and I/O port Address 2F8h-2FFh.

2.2.2. Motherboard Mouse Port(PS/2)

Most never computers now come with a dedicated mouse port built into the motherboard. This was started by IBM with the PS/2 systems in 1987, so this interface is often referred to as a PS/2 mouse interface. This term does not imply that such a mouse can work only with a PS/2; instead, it means that the mouse can connect to any system that has a dedicated mouse port on the motherboard.

A motherboard mouse connector usually is exactly the same as the mini-DIn connector used for newer keyboards. In fact, the motherboard mouse port is connected to the 804-type keyboard controller found on the matherboard. All the PS/2 computers include mini-DIN keyboard and mouse port connectorson the back. Most compatible Slimlinecomputers also have these same connectors for space reasons. Other motherboards have a pin-header type connector for the mouse port because most standard cases do not have supplied with the system that adapts the pin-header connector on the motherboard to the standard mini-DIN type connector used for the motherboard mouse.

10

Connecting a mouse to the built_in mouse port is the best method of connection because you do not lose or any serial ports and perfaormance is not limited by the serial ports circuitry. The standard resource usage for a motherboard (or PS/2) mouse port is IRQ12 and I/O Port Address 60h and 64h. Because the motherboardmouse port uses the 8042-type keyboard controller chip, the port addresses are those of this chip. IRQ 12 is an interrupt that is usually free on most systems and course, must rupt sharing is not allowed with the ISA bus.

2.2.3. Bus

A bus mouse is typically used in systems that do not have a motherboard mouse port or any available serial ports. The name bus mouse is derived from the fact that the mouse requires a special bus interface board that occupies a slot in your computer and communicates with the devices driver accross the main motherboard bus. Although the use of a bus mouse is transparent to the user (there is no operational difference between a bus mouse and other types of mice), many people view a bus mouse as less desirable than other types because it occupies a slot that could be used for other pripherals.Another drawback to the bus mouse is that it is electrically incompatible with the other types of mice. Because it is not very popular, a bus mouse can be hard to find in a pinch. Likewise, the bus adapters aretypically available only for ISA slots; because they are alwas 8-bit cards, you are limited in the choice of nonconflicting hardwaere interrups. A bus mouse can also be dangerous because it uses a mini-DIN connector just like the motherboard (PS/2)-type mouse, although they are totally incompatible.

Bus mouse adapter cards usually have a selectable interrupt and I/O port address setting, but the IRQ selection is limited to only 8 bit interrupts. The usually means that you must choose IRQ 5 in most system that already have two serial ports because all the other 8 bit interrupts will be used. If you also are using another 8 bit only card that needs an interrup, like some of Mouse

11

the sound cards, you will not be able to run both devices in the same system without conflicts. All in all, i do not recommend bus mice and think they should be avoided.

One thing to note is that Microsoft somitimes calls a bus mouse an Inport mouse, Which is its proprietary name for a bus mouse connection.

2.3. Mouse Troubleshoting

If we are experiencing problems with your mouse, we need to look in only two general places- hardware or software.

2.3.1. Hardware Problems

Two types of hardware problems can crop up when we are using a mouse.The most commen is a dirty mouse, which is fixed by doing some "mouse cleaning". The other relates to interrupt conflicts and is more difficult to solve.

2.3.2. Software Problems

Software problems can be litle trickier than hardware problems. Software problems generally manifest themselves as the mouse "just not working."In such instances, we need to check the driver and oursoftware applications before assuming that the mouse itself has gone bad.

For software for mouse there are commands and these commands must writen by us into autoxect.bat and confing.sys. If we do not include commands of moues then will not use to the mouse into the program by us. There for commands of mouse for driver software:

- mouse.come

- mouse.sys

Mouse.com must be include in autoexec.bat form.

Mouse.sys must be include in confing.sys into the Dos both of them.

In confing.sys:

devicehigh=\dos\mouse.sys rt should be write like this into confing.sys's form.

2.4. Trackpoint

In April 1992, at one of the IBM was an enthusiastic gentleman with looked like some homemade keyboards. These keyboards had a small rubber tipped "stick" that protruded from between the G,H and B keys.

The stick itself did not move and is not a joystick.Instead it had a silicone rubber cap that contained pressure transducers that measured the amount of force thumb was appplying and the direction of the force and moved the mouse pointer accordingly. The harde 1 pressed, the faster the pointer moved.By slightly changing the direction of push.The silicon rubber gripped designer's thumb even though designer had been sweating from dashing about the show. After playing around with it for just a few minutes, the movements became automatic-almost as if designer could just "thins" about where designer wanted to pointer to go, and it would go there. Mouse

After reflecting on this for a minute, it really hit him: This hat to be the most revolutionary pointing device since the mouse itself.

This devices occupies no space on desk, doe snot haveto be adjusted for left-hended or righ-handed use, has no moving parts to fall or become dirty, and-most importand-does not require we to move our hands from the home row to use. This is an absolute boon for anybody who touch types.

On Octeber 20,1992, Ibm announced the Thinkpad 700, which icluded the Trackpoint II integrated pointing devie.

In final production form, the Trackpoint II consists of a small red silicone rubber knob nesled between the G,H and B keys on the keyboard. Two buttons are placed below the space bar to emulate the LH and RH mouse buttons for making selections. These buttons also can be easily reached without taking our hand off the keyboard. Research done by the inventors found that the act of removing our hand from the keyboard, reaching for a mouse, and replacing the handon the keyboard takes aproximately 1.35seconds. Almost all this time can be saved each time the Trackpoint is used to either move the pointer or make a selection (click or double click). The combination of the buttons and the positioning knob also enable drag-and-drop function to be performed easily as well.

By the way, the reason the device was called Trackpoint II is that IBM had previously been selling a coonvertible mouse/trackball device called the trackpoint. No relationshipexists between the original Trackpoint mouse/trackball, which has since been discontinued, and the Trackpoind II integreted device. Since the original Trackpoint II came out, an improved version ot the same thing.

Another feature of the Trackpoint is that a mouse can be connected to the system to allow for dual-pointer use. In this case, a single mouse pointer would still be on the screen; however, both the Trackpoint and the simultaneously connected mouse could move the pointer. This allows not only the use of both devices by a single person, but in fact two people can use both the Trackpoint and the mouse simulaneously to move the pointer on the screen. The first pointing device that moves takes precedence and retains control over the mouse pointer on the screen until it completes a movement action. The secons pointing device is automatically locked out until the primary device is stationary. This enables both devices to be used, butprevents each one from interfering with the other.

The Trackpoint is obviously an ideaal pointing device for a laptop system where lugging around an external mouse or trackball can be a pain. The Trackballs and mini trackballs built into some laptop keyboards are also very difficult to use and usually require removing our hands from the home row. Mouse and Trackball devices are notorios for becoming "sticky" as the ball picks up dirt that affects the internal roller motion. This is especially aggravated with the smoller mini trackball devices. But the benefits of the Trackpoint are not limited to laptop systems. IBM/Lexmark now manufactures and sells desktop enhanced keyboards with the Trackpoint device built in. These new keyboards are also optinal when purchasing a new PS/2 system. One drawback is that the Trackpoint device in these keyboards initially worked only with systems that used a PS/2 or motherboard-type mouse connector. However, the Tracpoint enhanced keyboard is now available in two versions. One interfaces via a motherboard mouse port (mini DIN connector) and has a mini-DIN type keyboard connector. The other has a standard DIN keyboard connector and a serial connector for the pointing function.

The Trackpoint probably stands as the most importand and revolutionary new pointing device since the original invention of the mouse in 1964 by Douglas Englebart at the

15

Stanford Reseach Institute.As IBM licenses this technology to other manufacturers, we will probably see Mouse this device show up in many different systems. It is already avaliable built into keyboards, which can upgrade many existing systems, and companies such as Toshiba are already using this IBM-developed technology in their own systems.

IBM has continued to innovate where laptop or notebook systems are concerned. They have recently introduced models of their Thinkpad line with an expandable automatic fold-out keyboard code-named the butterfly. This allows the system to be much smaller than the competition when folded, yet when opened the keyboard automatically pops out and becomes full-sized. Innovations like this have propelled IBM to the top of the laptop and notebook computer market.Recently they have surpassed even Toshiba in sales of these devices, Which means that IBM now leads all others in laptop and notebook computer sales.

In response to the Trackpoint, other companies have licensed and adapted IBM's technology in this area. Also instead of sitting in between the keys, the Glidepoint is mounted below the space bar, and detects pressure applied by our thumbs or fingers.Transducers under the pad convert the pressure into pointer movement just as with the trackpoint.

2.5. PARALLEL MOUSE

This type of mouse is designed by Zafer Kemal Akarsu in 2003. This mouse is depended type of CPU, because I used parellel port (LPT1) and address of this port 3F8h-3FAh and these addres have a pin in the LPT port.For example:

Example-a- for 3F8h, it has 8 famela pin and these are data pins.In here can trasfer of data inside of outside, and these pins work with +5v therefore we can send to port each of

them(pins) and can controll any external device and can controll hight voltage in a system with using +5v with one or until 8 pin.And same time this 8 female pins mean is we can send to 8bits to outside. If we send 8 of valu to this port addres (00001000) then will be active 8th pin(+5v) others pins will be not active.

Example-b- for 3F9h, it has 5 famela pin and these are called status pins.These pins are used by programmer for input.There fore We can call input pins for these use for input of data.These have +5volt, if we connect these pins to ground then will going to 0 voltage. I used this port addres in my mouse design.At the moment my mouse does not have a trckball but after than can applying, it does not matter.i uses as i said.for example, if this port has 255 value this means 11111111. Therefore if we connect ground to number of 3th pin in this port then our value of port will have 11111011 there fore tere will be 251 value of this port.and When it is 251 it means input of data from outside.I used this method in mydesign.

Example-c- for 3FAh, It has 4 famela pins and these called controll pin.sometime we uses this port address for controll.

We can use this mouse with serial mouse or we can use independent from serial mouse.Serial mouse can work connectionless and mydesign mouse can work connectionles can work with radio signal..etc. My design of parallel mouse figure is on next page:

for Radio signal or other...

LPT port status of pin port
3F9H parallel port.

GND

5v

structure of
key

Gnd   5v
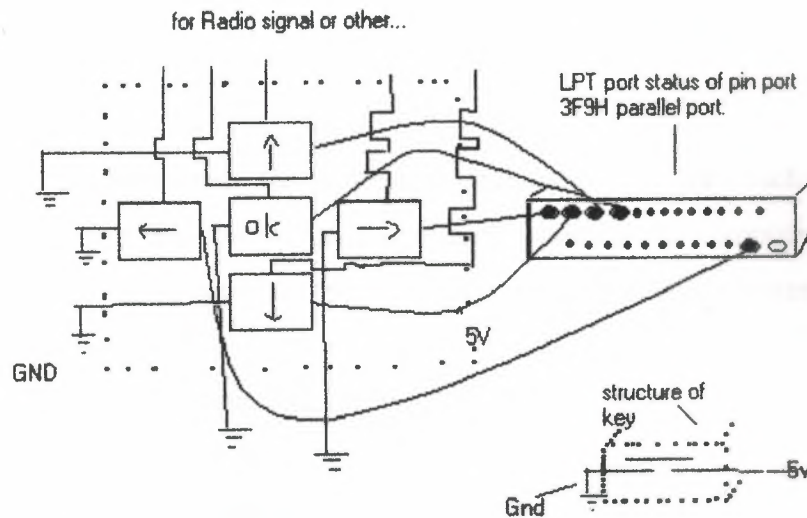
Figure.2.2: My design parallel port's structure.

note: You can to add more than five less than 32 keys,because there
are 5 pins for addres 3F9h that so 2*2*2*2*2=32 only you can use
in this address case.

3.PORTS

3.1. About Ports

A door between the computer and another device, such as a printer or a modem...etc. Data travels back and forth between the computer and other devices through ports that are build in to the computer. Personal computer has more than one ports. These are:

- 9-pin serial ports
- 25-pin parallel port
- Game and Video port
- PS/2 keyboard 5-pin...etc.

These are visible on the back of the system unit. Not all ports are accessible; some of them are incorporated into the mainboard.

3.2. Parallel (Printer) and Serial Ports

Figure.3.1. shows the back of the system unit. Here we can see the serial and parallel interface ports. These ports allows you to connect a variety of printers (or mymouse) and communications devices to the personal computer. I shown next page about ports on case of computer.
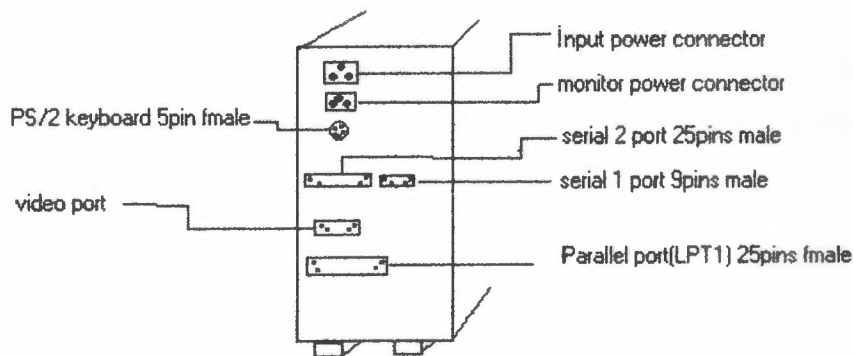
Figure.3.1: Reaer View of our personal computer

On Some computer ports's place may be different on place on case.And More than these ports they may have.

Any Centronics compatible parallel printer or external modem with a standard RS-232 intertace can be used with your personal computer. Usually these device simply need to be conneced to the appropriate port at the rear of the computer.If you wish to use these port with nonstandard devices, you must make appropriate changes to the devices' cable. Refer to Appendix A for connector pin assignments.

The parallel port is printer port. The serial port is communication ports.For instructions on printing, refer to the MODE, PRINT, and GRAPHICS command in the dos manual.

If we have an external modem, consult both its manual and MODE command in dos for further instructions.

3.2.1. Parallel Port

The parallel port is located at the center back of the system unit to the left of the serial port. It has a DB-25 female connector. Connector pin assignments and description of parallel port and show figure.4 to you below:
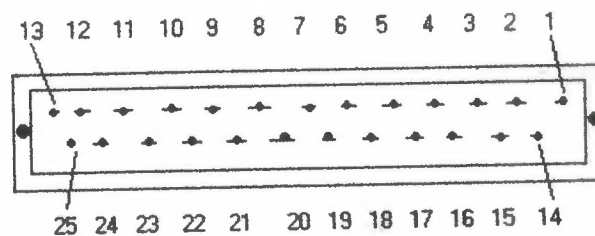
Figure.3.2.: Parallel ports(LPT1)

Pin#1, signal is strobe, dir is out.Here strobe pulse to read data. Pulse width must be more than 0.5macrosecond at the printer.The signal is active LOW.

Pin#2, signal is data 0, dir is out.
Pin#3, signal is data 0, dir is out.
Pin#4, signal is data 0, dir is out.
Pin#5, signal is data 0, dir is out.
Pin#6, signal is data 0, dir is out.
Pin#7, signal is data 0, dir is out.
Pin#8, signal is data 0, dir is out.

Pin#9, signal is data 0, dir is out.

these signals represent information about 1sth through 8th bits, respectively, of parallel data. The High level is logical "1".

Pin#10, signal is acknlg,dir is in. Approximate 5macrosecond pulse. LOW pulse. Low indicates data has been received,and the printer is ready to accept more data.

Pin#11, signal is busy, dir is in. High indicates the printer can not receive data. The signal becomes High in the following cases:

1. During data entery
2. During printing
3. In off-Line state
4. During printer error status.

Pin#12, signal is pend,dir is in. High indicates the printer is out of paper.

Pin#13, signal is select, dir is in. High indicates the printer is selected.

Pin#14, signal is auto,dir is out. When Low. paper is automatically fed one line after printing.

Pin#15, signal is error, dir is in. Signal is becomes Low when the printer is in paper and state and off-line state and error state.

Pin#16, signal is initialize printer, dir is out. When Low, the printer controller is reset to its initial state, and the printer buffer cleared. This signal is normally High, and is pulse width must be more than 50macrosecond at the printer.

Pin#17, signal is select input, dir is out. Data entry to the printer is possible only when this signal is Low.

Pin#18-25, signal is ground.

Parallel port has a software address and adater board combinations.There fore if there is no adapter then software address built in 378h for software adapter address is no here. if parallel port on monochrome card then software address built in 378h and adapter address is 3bch. If specially parallel/serial adapter then software built in 378h and adapter address is 278h. If parallel/serial adapter and parallel port on monochrome card then software address built in 378h and adapter address is 3bch, (monochrome)278h(parallel/serial).

3.2.2. Serial Port

Configures to use an IBM At-compatible serial device, these ports are located to the right of the parallell port somtime may be top of parallel port because case may change. It has a DB-9 male connector/a DB-25 male connector. These ports may be used for serial modems by correctly configuring the modem cable pins.Connector pin-assinments and description of serial port and shown below figure.3.3.
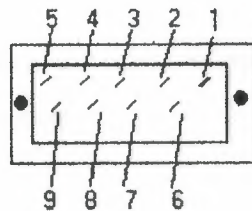
figure 3.3.: Serial 1 Port

Pin#1, signal is Rlsd (carrer detector),dir is in. Serial device is receiving signal.

Pin#2, signal is Rxd (receive data),dir is in. Data transmission line from external device to computer.

Pin#3, signal is Txd (transmit data),dir is out. Data transmission line from computer to external device.

Pin#4, signal is DTR (data terminal ready), dir is out. Informs external device that computer is ready to communicate.

Pin#5, signal is Sg (signal ground), dir is in/out. Ground reference for all data and control signals.

Pin#6, signal is Dsr (data set ready), dir is in. External device ready to transmit data to the computer.

Pin#7, signal is Rts (request to send), dir is out. Informs external device that computer is ready to the transmit data.

Pin#8, signal is Cts (clear to send), dir is in. Indicates a ready signal from an external device to the computer.

Pin#9, signal is RI (ring indicator), dir is in. Signals incoming call. In serial port 2, no 9 is changed by No 22.

4.PARALLEL AND SERIAL MOUSE CONTROL AND USE IN SOFTWARE

4.1. About Parallel and Serial Mouse Conntroll and Use in Software

We can controll menu with these mouse. We know tre are a lot type of mouse in this earht.some mouse may be connectioly,some mouse connectionles and mouse work with serial 1 port and PS/2 but parallel mouse that I designed it, it works with parallel port (LPT1) and same time we can use these mice some place.after taht you will see parallel mouse work with serial mouse and without serial mouse and you will see same ting in serial mouse. I will explain parallel mouse in Qbbasic and pascal program languages.

4.2. Control Of Serial Mouse in Borlandpascal Program Language

we can controll a menu in pascal with serial or parallel mouse.And we can see x position of mouse bar on the display and can find the value x position of mouse and same time we can do same thins for y position of mouse and we can find left click and right click value of mouse in this program language.

25

I made a program for controll of mouse and controll the display with mouse in borland pascal. And I will explain some part of program and will see output of this program here.Program is below:,

```
uses dos,crt;
{dos and crt is unit of borland pascal specially.And uses call to dos and crt unit or others we
use this.And we use dos unit because for mouse when we use register in the program in
pascal we have to use this unit. And we use crt unit for clearscreen,dellay,color... etc. there
are no only both of them more than two unit specially and we create new unit in pascal or
borland pascal.}
VAR
mousereg:registers;
mouseinstalled:boolean;
P,XX,YY,mouseerror:word;
cas1,DURUM,DCOUNT, AX,AY,TAKE:INTEGER;
LABEL BASLA;
{ we must to use variable in pascal or borland pascal when we use some variable    and we
must define these variable in the any program.That so we must to use variable under the VAR
and for type of variable}


PROCEDURE SHOWMOUSE;
    BEGIN
    MOUSEREG.AX:=1;
    INTR($33,MOUSEREG);
    END;
{mousebar is shown by this procedure oky other a way may be but I used this way  1 means
value of mousebar and $33 no means interrup and mousereg sen to 1 to $33 no interrupt}
```

```
PROCEDURE HIDEMOUSE;
   BEGIN
   MOUSEREG.AX:=2;
   INTR($33,MOUSEREG);
   END;
```
{ 2 means value of mousebar and $33 no means interrup and mousereg sen to 2 to $33 no interrupt}

```
FUNCTION MOUSEPOSITION( VAR X,Y:WORD):WORD;
   BEGIN
   MOUSEREG.AX:=3;
   INTR($33,MOUSEREG);
   WITH MOUSEREG DO
   BEGIN
   X:=SUCC(CX DIV 8);
   Y:=SUCC(DX DIV 8);
   MOUSEPOSITION:=BX;
   END;
   END;
```
{This precudure uses x and y position of mouse. (...DIV 8 meams x and y has a real position value if we do not use this so then mouse position x and y will be differend for example 1234 for x, and 123 for y these are very large numbers and for use is very hartly so. that so i have used ...DIV 8 there fore only x value is 1-80 and y value is 1 and 24 in this form.}

```
PROCEDURE SETMOUSEPOSITION(MX,MY:WORD);
   BEGIN
   MOUSEREG.AX:=4;
```

```
    MOUSEREG.CX:=PRED(MX*8);
    MOUSEREG.DX:=PRED(MY*8);
     INTR($33,MOUSEREG);
  END;


PROCEDURE SETMOUSEXY(X1,Y1,X2,Y2:WORD);
BEGIN
MOUSEREG.AX:=7;
    MOUSEREG.CX:=PRED(X1*8);
    MOUSEREG.DX:=PRED(X2*8);
    INTR($33,MOUSEREG);
MOUSEREG.AX:=8;
    MOUSEREG.CX:=PRED(Y1*8);
    MOUSEREG.DX:=PRED(Y2*8);
    INTR($33,MOUSEREG);
     END;
{And this procedure is limiting of x and y value of position on the display}


procedure test;
var
 a,b,c,d:integer;
 begin
 for a:=1 to 4 do begin
textcolor(7); gotoxy(38,1+a);writeln('z');
 textcolor(1); gotoxy(30,5+a);writeln('aaaaa');
textcolor(2); gotoxy(36,5+a);writeln('yyyyy');
```

textcolor(3); gotoxy(42,5+a);writeln('ŸŸŸŸŸ');

textcolor(2); gotoxy(30,9+a);writeln('eeeeeeeeeeeeeeeeee');

 GOTOXY(35,11);writeln('zafer');

 end;

gotoxy(31,14);writeln('eeeeeeeeeeeeeee');

gotoxy(32,15);writeln('eeeeeeeeeeeee');

textcolor(7);

gotoxy(22,17);writeln('CONTROLL OF SERIAL 1 PORT MOUSE');

textcolor(6);

gotoxy(16,18);writeln('position x   position y   case of click value');

```
    port[$3c8]:=3;
    port[$3c9]:=0;
    port[$3c9]:=0;
    port[$3c9]:=40;
    port[$3c8]:=2;
    port[$3c9]:=10;
    port[$3c9]:=40;
    port[$3c9]:=0;
```

{I used port command for change of color $3c8 means address of color.

```
    port[$3c8]:=3; detect 3 number of color
    port[$3c9]:=0;red  for changing 0-62
    port[$3c9]:=0;green for changin 0-62
    port[$3c9]:=40;blue for changing 0-62 }
```

end;

BEGIN {main program}

   CLRSCR; {clearinf of the display}

29

```
test;
SETMOUSEPOSITION(1,1);
SHOWMOUSE;
{SETMOUSEXY(1,1,79,24);}
REPEAT
TAKE:=PORT[$379]XOR 128 ;
IF TAKE=191 THEN BEGIN
AX:=AX+1;
SETMOUSEPOSITION(AX,AY);
DELAY(50);
END;
IF TAKE=127 THEN BEGIN
AX:=AX-1;
SETMOUSEPOSITION(AX,AY);
DELAY(50);
END;
IF TAKE=239 THEN BEGIN
AY:=AY-1;
SETMOUSEPOSITION(AX,AY);
DELAY(50);
END;
IF TAKE=223 THEN BEGIN
AY:=AY+1;
SETMOUSEPOSITION(AX,AY);
DELAY(50);
END;
```

```
IF (XX>16) AND (XX<63) AND (YY=21) AND((TAKE =247) OR (P=1)) THEN
BEGIN
{if mousebar position like xx>16 and xx<63 and yy=21 and p=1 then will show below
message p means is left button value of moue}

GOTOXY(16,21);WRITELN('        I WILL CRAY YAHU WHERE ARE YOU?        ');
    SHOWMOUSE;
  DURUM:=7;   DCOUNT:=0;
  END;
     IF (XX>34) AND (XX<40) AND (YY=11) AND((TAKE =247) OR (P=1)) THEN
  BEGIN
{in here too xx>34 and xx<40 and yy=11 and p=1 then will show below message on the
display at the limitig time.}
    gotoxy(21,23);writeln('I am Zafer Kemal Akarsu and I LOVE A.K.');
   SHOWMOUSE;
  cas1:=1;
  END;
  IF CAS1=1 THEN BEGIN
  DCOUNT:=DCOUNT+1;
  IF DCOUNT>8000 THEN BEGIN
  gotoxy(21,23);writeln('                         ');
  CAS1:=0;DCOUNT:=0;
  END;
  END;
```

31

```
IF DURUM=0 THEN
BEGIN
 TEXTCOLOR(6);
 GOTOXY(16,21);WRITELN('IF YOU WANT TO FIND ME THEN FIND ON THE
DISPLAY');
 DURUM:=2
 END;


 IF DURUM=7 THEN BEGIN
 DCOUNT:=DCOUNT+1;
 IF DCOUNT>8000 THEN DURUM:=0;


 END;
 P:=MOUSEPOSITION(XX,YY);
{p means is if we click left button of mouse  value of p is 1 if right click p is 2 and both of
them clic then will p is 3}
 textcolor (7);
 GOTOXY(20,19);WRITELN(xx,'          ',yy,'          ',p);
 GOTOXY(20,19);WRITELN('                           ');
 GOTOXY(20,19);WRITELN(xx,'          ',yy,'          ',p);
 textcolor(7);
 SHOWMOUSE;

 if p=1 then
  begin
  {mouse click left control if click left button is going darkly}
```

```
     port[$3c8]:=1;
     port[$3c9]:=0;
     port[$3c9]:=0;
     port[$3c9]:=29;
     end;
  if p=2 then
    begin
    {mouse click right control if click left button is going darkly}
     port[$3c8]:=3;
     port[$3c9]:=0;
     port[$3c9]:=0;
     port[$3c9]:=29;
     end;
    if p=3 then
    begin
    {mouse click both of them control if click left button is going darkly}
     port[$3c8]:=1;
     port[$3c9]:=0;
     port[$3c9]:=0;
     port[$3c9]:=29;
     port[$3c8]:=3;
     port[$3c9]:=0;
     port[$3c9]:=0;
     port[$3c9]:=29;
     end;
     if p=0 then
```

33

```
    begin
{ there is a nonclick it will going default color of original color of mouse}
    port[$3c8]:=1;
    port[$3c9]:=0;
    port[$3c9]:=0;
    port[$3c9]:=40;
    port[$3c8]:=3;
    port[$3c9]:=0;
    port[$3c9]:=0;
    port[$3c9]:=40;
    end;
UNTIL KEYPRESSED;{until click a key on the keyboard loop is continous}
END.
```

Output of this program on the display on next page:

```
                    z
                    z
                    z
                    z
            aaaaa yyyyy sssss
            aaaaa yyyyy sssss
            aaaaa yyyyy sssss
            aaaaa yyyyy sssss
            eeeeeeeeeeeeeeeee
            eeeeezafereeeeeee
            eeeeeeeeeeeeeeeee
            eeeeeeeeeeeeeeeee
             eeeeeeeeeeeeeee
              eeeeeeeeeeeee
```

CONTROLL OF SERIAL 1 PORT MOUSE
position x   position y   case of click value
1   1   0

IF YOU WANT TO FIND ME THEN FIND ON THE DISPLAY

Figure.4.1.: Output of program of serial mouse test

This figure is when first start to running will appeard on the display as shown.

4.3. Control and Applying Of Parallel Mouse in QBASIC Program Language

Here I will explain how can we control the this designed parallel mouse and how can use this on display for selection. First we sould know parallel port pin configuration and how can we take to input signal from outside from the parallel port. There are 25 pins female in paralel port these 5 of them is we can use for input. Therefor if we use for input 5 pins then we can take 2*2*2*2*2 = 32 (5 bits)inputs value.00000000 8bits can take data input.If it is 11100001 it means 224. 224 means 11100001. And I used parallel port addres for input &h3F9.But in some computer pin configuratin may be change that so &h3F8 is Data pins (8 bits) shown chapture 3 and &h37A is control pins(4bits) when you know these you can set to this parallel mouse.

I made a program in Qbasic for parallel port controll and applying on the display and commands are gave to you by me and output of programs.

```
DIM TAKE(1 TO 200) AS INTEGER
DIM CEV(1 TO 100) AS STRING
DIM X1, X2, Y1, CONTROL1, CONTROL2, ACASE1 AS INTEGER
DECLARE SUB yaz (X!, Y!, A!, oz!)
DECLARE FUNCTION getir! (X!, Y!, r)
DECLARE SUB openfile (STP!)
DECLARE SUB kARE (A!, b!, C!, D!, E!, F!, G!)
DECLARE SUB ALTMENU (X1!, Y1!, CONTROL1!, CONTROL2!)
DECLARE SUB ZERO ()
```

```
DECLARE SUB EXPLAIN (EX, EY, ECOLOR, WEXPLAIN!)
DECLARE SUB ezero ()
SCREEN 0
CLS

COLOR 8: LOCATE 2, 1: PRINT STRING$(80, 219)
LOCATE 3, 1: PRINT STRING$(80, 222)
COLOR 8: LOCATE 4, 1: PRINT STRING$(80, 219)

COLOR 7, 4:
 LOCATE 3, 5: PRINT " OPEN FILE "
 LOCATE 3, 18: PRINT " NEW PER. ENTRY "
 LOCATE 3, 36: PRINT " INF. APPEND "
 LOCATE 3, 50: PRINT " INF. READ   "
 LOCATE 3, 64: PRINT " INF. DELETE "
 COLOR 7, 0: LOCATE 22, 64: PRINT "HELP   [ F1 ]"
 COLOR 8, 0: LOCATE 17, 1: PRINT STRING$(80, 220)
 LOCATE 18, 1: PRINT STRING$(80, 179)
 COLOR 8, 0
 LOCATE 19, 1: PRINT STRING$(80, 223)
 COLOR 7, 4:
 LOCATE 18, 5: PRINT " CHANGE .......    "
 LOCATE 18, 25: PRINT " EXIT FROM PROGRM "
 COLOR 8, 0: LOCATE 5, 1: PRINT STRING$(960, 176)
 kARE 21, 63, 1, 14, 8, 0, 4
 kARE 20, 3, 2, 59, 8, 0, 4
```

```
'COLOR 8, 0: LOCATE 20, 1: PRINT STRING$(80, 220)
'COLOR 7, 0: LOCATE 21, 1: PRINT STRING$(80, 219)
'COLOR 8, 0: LOCATE 22, 1: PRINT STRING$(80, 219)

EXPLAIN1$ = "EXPLAIN ABOUT MENU"
FOR t = 1 TO LEN(EXPLAIN1$)
yaz 19, 4 + t + SKIP, ASC(MID$(EXPLAIN1$, t, 1)), 31
SKIP = SKIP + 2
NEXT
SKIP = 0

FOR t = 0 TO 80
yaz 0, -1 + t, 218, 15
yaz 23, -1 + t, 219, 8
yaz 0 + TA, 0, 219, 8
yaz 0 + TA, 79, 219, 8
yaz 24, -1 + t, 192, 15
TA = TA + 1
IF TA > 23 THEN TA = 23
NEXT

'warning rek sorunu var```````````````````````
TAKE(1) = (getir(1, 1, 3))
'yaz 14, 34, getir(1, 1, c), c
X = 0: Y = 0
TAKE(1) = (getir(1, 1, C))
```

```
head = 65
efect = 60
yaz Y, X, head, efect
ptake = INP(&H379)
CFIND = 255 - ptake

'***************************for color change 3
OUT &H3C8, 3
OUT &H3C9, 30
OUT &H3C9, 0
OUT &H3C9, 0
'*****************starting of program from here of mouse control*****
'B$ = "This program is writen by ZAFER AKARSU"
'FOR T = 1 TO LEN(B$)
'CEV(T) = MID$(B$, T, 1)
'NEXT

CASAE1 = 0: CASAE2 = 0: CASAE3 = 0
CASAE4 = 0: CASAE5 = 0: CASAE6 = 0
CASAE7 = 0: CASAE8 = 0

basla:
'LOCATE 21, 4: PRINT "x=", X, "y=", Y
t$ = INKEY$
yaz Y, X, head, efect
ptake = INP(&H379) XOR CFIND
```

```
pltake = INP(&H378 + 2) XOR 243
FOR u = 1 TO 50: Dc = Dc + 1: NEXT
IF t$ = CHR$(27) THEN GOTO son

'LOCATE 10, 10: PRINT ptake, pltake

IF ptake = 191 THEN FOR YT = 1 TO 9000: ZET = ZET + 1: NEXT
IF ptake = 127 THEN FOR YT = 1 TO 9000: ZET = ZET + 1: NEXT
IF ptake = 223 THEN FOR YT = 1 TO 9000: ZET = ZET + 1: NEXT
IF ptake = 239 THEN FOR YT = 1 TO 9000: ZET = ZET + 1: NEXT
IF t$ = CHR$(0) + "M" OR ptake = 191 THEN
        X = X + 1
        IF ALT1 = PEEK(264) THEN C = PEEK(263): POKE 264, 1
```

' 28

```
        TAKE(2) = (getir(Y + 1, X + 1, C1))
        yaz Y, X, head, efect
        yaz Y, X - 1, ASC(CHR$(TAKE(1))), C
        TAKE(1) = TAKE(2)
        C = C1
        END IF


IF t$ = CHR$(0) + "K" OR ptake = 127 THEN
        X = X - 1
        IF ALT1 = PEEK(264) THEN C = PEEK(263): POKE 264, 1
```

```
        TAKE(2) = (getir(Y + 1, X + 1, C1))
        yaz Y, X, head, efect
        yaz Y, X + 1, ASC(CHR$(TAKE(1))), C
        TAKE(1) = TAKE(2)
        C = C1


    END IF


IF t$ = CHR$(0) + "P" OR ptake = 223 THEN
        Y = Y + 1
        IF ALT1 = PEEK(264) THEN C = PEEK(263): POKE 264, 1
        TAKE(2) = (getir(Y + 1, X + 1, C1))
        yaz Y, X, head, efect
        yaz Y - 1, X, ASC(CHR$(TAKE(1))), C
        TAKE(1) = TAKE(2)
        C = C1
    END IF
IF t$ = CHR$(0) + "H" OR ptake = 239 THEN
        Y = Y - 1
        IF ALT1 = PEEK(264) THEN C = PEEK(263): POKE 264, 1
        TAKE(2) = (getir(Y + 1, X + 1, C1))
        yaz Y, X, head, efect
        yaz Y + 1, X, ASC(CHR$(TAKE(1))), C
        TAKE(1) = TAKE(2)
        C = C1
```

```
            END IF
'COLOR 4: LOCATE 20, 20 + X: PRINT C
IF X > 3 AND X < 15 AND Y = 2 AND CASE1 = 0 THEN
      IF CALENTER = 1 THEN ENTER = 1
      COLOR 7, 1: LOCATE 3, 5: PRINT " OPEN FILE "
      COLOR 7, 4: LOCATE 3, 18: PRINT " NEW PER. ENTRY "
      COLOR 7, 4: LOCATE 3, 36: PRINT " INF. APPEND "
      COLOR 7, 4: LOCATE 3, 50: PRINT " INF. READ   "
      COLOR 7, 4: LOCATE 3, 64: PRINT " INF. DELETE "
      COLOR 7, 0: LOCATE 22, 64: PRINT "HELP   [ F1 ]"
      COLOR 7, 4: LOCATE 18, 5: PRINT " CHANGE .......   "
      COLOR 7, 4: LOCATE 18, 25: PRINT " EXIT FROM PROGRM "
      kARE 21, 63, 1, 14, 8, 0, 4
      yaz Y, X, ASC(CHR$(TAKE(1))), 23
      C = 23
      TAKE(2) = TAKE(1)
      CASE1 = 1: CASE2 = 0: CASE3 = 0: CASE4 = 0: CASE5 = 0: CASE6 = 0
      CASE7 = 0: CASE8 = 0
      ezero
      END IF
IF X > 16 AND X < 33 AND Y = 2 AND CASE2 = 0 THEN
       IF CALENTER = 1 THEN ENTER = 1
       COLOR 7, 4: LOCATE 3, 5: PRINT " OPEN FILE "
       COLOR 7, 1: LOCATE 3, 18: PRINT " NEW PER. ENTRY "
       COLOR 7, 4: LOCATE 3, 36: PRINT " INF. APPEND "
       COLOR 7, 4: LOCATE 3, 50: PRINT " INF. READ   "
       COLOR 7, 4: LOCATE 3, 64: PRINT " INF. DELETE "
```

42

```
COLOR 7, 0: LOCATE 22, 64: PRINT "HELP  [ F1 ]"
COLOR 7, 4: LOCATE 18, 5: PRINT " CHANGE .......    "
COLOR 7, 4: LOCATE 18, 25: PRINT " EXIT FROM PROGRM "
kARE 21, 63, 1, 14, 8, 0, 4
yaz Y, X, ASC(CHR$(TAKE(1))), 23
C = 23
TAKE(2) = TAKE(1)
CASE1 = 0: CASE2 = 2: CASE3 = 0: CASE4 = 0: CASE5 = 0: CASE6 = 0
CASE7 = 0: CASE8 = 0
ezero
END IF
IF X > 34 AND X < 48 AND Y = 2 AND CASE3 = 0 THEN
IF CALENTER = 1 THEN ENTER = 1
COLOR 7, 4: LOCATE 3, 5: PRINT " OPEN FILE "
COLOR 7, 4: LOCATE 3, 18: PRINT " NEW PER. ENTRY "
COLOR 7, 1: LOCATE 3, 36: PRINT " INF. APPEND "
COLOR 7, 4: LOCATE 3, 50: PRINT " INF. READ   "
COLOR 7, 4: LOCATE 3, 64: PRINT " INF. DELETE "
COLOR 7, 0: LOCATE 22, 64: PRINT "HELP  [ F1 ]"
COLOR 7, 4: LOCATE 18, 5: PRINT " CHANGE ......    "
COLOR 7, 4: LOCATE 18, 25: PRINT " EXIT FROM PROGRM "
kARE 21, 63, 1, 14, 8, 0, 4
yaz Y, X, ASC(CHR$(TAKE(1))), 23
C = 23
TAKE(2) = TAKE(1)
CASE1 = 0: CASE2 = 0: CASE3 = 3: CASE4 = 0: CASE5 = 0: CASE6 = 0
CASE7 = 0: CASE8 = 0
```

```
    Ezero: END IF
IF X > 48 AND X < 62 AND Y = 2 AND CASE4 = 0 THEN
        IF CALENTER = 1 THEN ENTER = 1
        COLOR 7, 4: LOCATE 3, 5: PRINT " OPEN FILE "
        COLOR 7, 4: LOCATE 3, 18: PRINT " NEW PER. ENTRY "
        COLOR 7, 4: LOCATE 3, 36: PRINT " INF. APPEND "
        COLOR 7, 1: LOCATE 3, 50: PRINT " INF. READ   "
        COLOR 7, 4: LOCATE 3, 64: PRINT " INF. DELETE "
        COLOR 7, 0: LOCATE 22, 64: PRINT "HELP   [ F1 ]"
        COLOR 7, 4: LOCATE 18, 5: PRINT " CHANGE .......   "
        COLOR 7, 4: LOCATE 18, 25: PRINT " EXIT FROM PROGRM "
        kARE 21, 63, 1, 14, 8, 0, 4
        yaz Y, X, ASC(CHR$(TAKE(1))), 23
        C = 23
        TAKE(2) = TAKE(1)
        CASE1 = 0: CASE2 = 0: CASE3 = 0: CASE4 = 4: CASE5 = 0: CASE6 = 0
        CASE7 = 0: CASE8 = 0
        ezero
        END IF
IF X > 62 AND X < 76 AND Y = 2 AND CASE5 = 0 THEN
        IF CALENTER = 1 THEN ENTER = 1
        COLOR 7, 4: LOCATE 3, 5: PRINT " OPEN FILE "
        COLOR 7, 4: LOCATE 3, 18: PRINT " NEW PER. ENTRY "
        COLOR 7, 4: LOCATE 3, 36: PRINT " INF. APPEND "
        COLOR 7, 4: LOCATE 3, 50: PRINT " INF. READ   "
        COLOR 7, 1: LOCATE 3, 64: PRINT " INF. DELETE "
```

```
        COLOR 7, 0: LOCATE 22, 64: PRINT "HELP   [ F1 ]"
        COLOR 7, 4: LOCATE 18, 5: PRINT " CHANGE .......     "
        COLOR 7, 4: LOCATE 18, 25: PRINT " EXIT FROM PROGRM "
        kARE 21, 63, 1, 14, 8, 0, 4
        yaz Y, X, ASC(CHR$(TAKE(1))), 23
        C = 23
        TAKE(2) = TAKE(1)
        CASE1 = 0: CASE2 = 0: CASE3 = 0: CASE4 = 0: CASE5 = 5: CASE6 = 0
        CASE7 = 0: CASE8 = 0
        ezero
        END IF
IF X > 3 AND X < 23 AND Y = 17 AND CASE6 = 0 THEN
        IF CALENTER = 1 THEN ENTER = 1
        COLOR 7, 4: LOCATE 3, 5: PRINT " OPEN FILE "
        COLOR 7, 4: LOCATE 3, 18: PRINT " NEW PER. ENTRY "
        COLOR 7, 4: LOCATE 3, 36: PRINT " INF. APPEND "
        COLOR 7, 4: LOCATE 3, 50: PRINT " INF. READ   "
        COLOR 7, 4: LOCATE 3, 64: PRINT " INF. DELETE "
        COLOR 7, 0: LOCATE 22, 64: PRINT "HELP   [ F1 ]"
        COLOR 7, 1: LOCATE 18, 5: PRINT " CHANGE .......     "
        COLOR 7, 4: LOCATE 18, 25: PRINT " EXIT FROM PROGRM "
        kARE 21, 63, 1, 14, 8, 0, 4
        yaz Y, X, ASC(CHR$(TAKE(1))), 23
        C = 23
        TAKE(2) = TAKE(1)
        CASE1 = 0: CASE2 = 0: CASE3 = 0: CASE4 = 0: CASE5 = 0: CASE6 = 6
```

```
CASE7 = 0: CASE8 = 0

    ezero

    END IF

IF X > 23 AND X < 42 AND Y = 17 AND CASE7 = 0 THEN

    IF CALENTER = 1 THEN ENTER = 1

    COLOR 7, 4: LOCATE 3, 5: PRINT " OPEN FILE "

    COLOR 7, 4: LOCATE 3, 18: PRINT " NEW PER. ENTRY "

    COLOR 7, 4: LOCATE 3, 36: PRINT " INF. APPEND "

    COLOR 7, 4: LOCATE 3, 50: PRINT " INF. READ   "

    COLOR 7, 4: LOCATE 3, 64: PRINT " INF. DELETE "

    COLOR 7, 0: LOCATE 22, 64: PRINT "HELP  [ F1 ]"

    COLOR 7, 4: LOCATE 18, 5: PRINT " CHANGE .......   "

    COLOR 7, 1: LOCATE 18, 25: PRINT " EXIT FROM PROGRM "

    kARE 21, 63, 1, 14, 8, 0, 4

    yaz Y, X, ASC(CHR$(TAKE(1))), 23

    C = 23

    TAKE(2) = TAKE(1)

    CASE1 = 0: CASE2 = 0: CASE3 = 0: CASE4 = 0: CASE5 = 0: CASE6 = 0

    CASE7 = 7: CASE8 = 0

    ezero

    END IF


IF X > 62 AND X < 76 AND Y = 21 AND CASE8 = 0 THEN

    IF CALENTER = 1 THEN ENTER = 1

    COLOR 7, 4: LOCATE 3, 5: PRINT " OPEN FILE "

    COLOR 7, 4: LOCATE 3, 18: PRINT " NEW PER. ENTRY "

    COLOR 7, 4: LOCATE 3, 36: PRINT " INF. APPEND "
```

46

```
COLOR 7, 4: LOCATE 3, 50: PRINT " INF. READ   "
COLOR 7, 4: LOCATE 3, 64: PRINT " INF. DELETE "
COLOR 10, 0: LOCATE 22, 64: PRINT "HELP   [ F1 ]"
COLOR 7, 4: LOCATE 18, 5: PRINT " CHANGE .......   "
COLOR 7, 4: LOCATE 18, 25: PRINT " EXIT FROM PROGRM "
kARE 21, 63, 1, 14, 1, 0, 4
yaz Y, X, ASC(CHR$(TAKE(1))), 10
C = 10
TAKE(2) = TAKE(1)
CASE1 = 0: CASE2 = 0: CASE3 = 0: CASE4 = 0: CASE5 = 0: CASE6 = 0
CASE7 = 0: CASE8 = 8
ezero
END IF


IF case10 = 0 THEN
FOR t = 1 TO LEN(b$)
yaz 0, 21 + t, ASC(MID$(b$, t, 1)), 3
NEXT
case10 = 1
END IF
'********************key pressed enter
IF t$ = CHR$(13) OR ptake = 247 THEN ENTER = 1
IF X > 3 AND X < 15 AND Y = 2 AND ENTER = 1 THEN
  openfile 1
```

```
      CALENTER = ENTER
      ENTER = 0
      '*************256...262...BELLEGI SIFIRLAR
      ZERO
      END IF


IF X > 16 AND X < 33 AND Y = 2 AND ENTER = 1 THEN
   openfile 2
   CALENTER = ENTER
   ENTER = 0
   ZERO
   END IF
IF X > 34 AND X < 48 AND Y = 2 AND ENTER = 1 THEN
   openfile 3
   CALENTER = ENTER
   ENTER = 0
   ZERO
   END IF
IF X > 48 AND X < 62 AND Y = 2 AND ENTER = 1 THEN
   openfile 4
   CALENTER = ENTER
   ENTER = 0
   ZERO
   END IF
IF X > 62 AND X < 76 AND Y = 2 AND ENTER = 1 THEN
   openfile 5
   CALENTER = ENTER
```

```
ENTER = 0
ZERO
END IF
IF X > 3 AND X < 23 AND Y = 17 AND ENTER = 1 THEN
   openfile 6
   CALENTER = ENTER
   ENTER = 0
   ZERO
   END IF
IF X > 23 AND X < 42 AND Y = 17 AND ENTER = 1 THEN
   openfile 7
   CALENTER = ENTER
   ENTER = 0
   ZERO
   END IF
IF X > 23 AND X < 42 AND Y = 17 AND t$ = CHR$(13) THEN
   openfile 7
   CALENTER = ENTER
   ENTER = 0
   ZERO
   END
   END IF
IF X > 62 AND X < 76 AND Y = 21 AND ENTER = 1 THEN
   openfile 8
   CALENTER = ENTER
   ENTER = 0
   ZERO
```

```
END IF

ALTMENU X, Y, CASE1 + CASE2 + CASE3 + CASE4 + CASE5 + CASE6 + CASE7 +
CASE8, CALENTER
EXPLAIN 5, 21, 2, CASE1 + CASE2 + CASE3 + CASE4 + CASE5 + CASE6 + CASE7 +
CASE8

IF ccase = 0 THEN
v = v + .01
OUT &H3C8, 1
OUT &H3C9, 0
OUT &H3C9, 0 + v
OUT &H3C9, 0
END IF
IF ccase = 1 THEN
OUT &H3C8, 1
OUT &H3C9, 0
OUT &H3C9, 0 + v
OUT &H3C9, 0
v = v - .01
END IF
IF v > 39 THEN ccase = 1
IF v < 1 THEN ccase = 0
GOTO basla
son:
```

```
SUB ALTMENU (X1!, Y1!, CONTROL1!, CONTROL2!)
DIM TAKE(1 TO 100) AS INTEGER
IF X1 > 3 AND X1 < 20 AND Y1 = 4 AND CONTROL1 = 1 AND CONTROL2 = 1 AND
ACASE1 = PEEK(256) THEN
COLOR 0, 14: LOCATE 5, 5: PRINT " New program    "
COLOR 0, 7: LOCATE 6, 5: PRINT " Open program..."
COLOR 0, 7: LOCATE 7, 5: PRINT " Save program..."
COLOR 0, 7: LOCATE 9, 5: PRINT " Create file    "
COLOR 0, 7: LOCATE 10, 5: PRINT " Load file      "
COLOR 0, 7: LOCATE 12, 5: PRINT " Print          "
COLOR 0, 7: LOCATE 13, 5: PRINT " Exit           "
C = 96
POKE 263, 96
POKE 264, 0
ACASE1 = 1: ACASE2 = 0: ACASE3 = 0: ACASE4 = 0:
ACASE5 = 0: ACASE6 = 0: ACASE7 = 0:
POKE 256, ACASE1: POKE 257, ACASE2
POKE 258, ACASE3: POKE 259, ACASE4
POKE 260, ACASE5: POKE 261, ACASE6
POKE 262, ACASE7
END IF

IF X1 > 3 AND X1 < 20 AND Y1 = 5 AND CONTROL1 = 1 AND CONTROL2 = 1 AND
ACASE2 = PEEK(257) THEN
COLOR 0, 7: LOCATE 5, 5: PRINT " New program    "
COLOR 0, 14: LOCATE 6, 5: PRINT " Open program..."
```

```
COLOR 0, 7: LOCATE 7, 5: PRINT " Save program..."
COLOR 0, 7: LOCATE 9, 5: PRINT " Create file     "
COLOR 0, 7: LOCATE 10, 5: PRINT " Load file      "
COLOR 0, 7: LOCATE 12, 5: PRINT " Print          "
COLOR 0, 7: LOCATE 13, 5: PRINT " Exit           "
POKE 263, 96
POKE 264, 0
ACASE1 = 0: ACASE2 = 1: ACASE3 = 0: ACASE4 = 0:
ACASE5 = 0: ACASE6 = 0: ACASE7 = 0:
POKE 256, ACASE1: POKE 257, ACASE2
POKE 258, ACASE3: POKE 259, ACASE4
POKE 260, ACASE5: POKE 261, ACASE6
POKE 262, ACASE7
END IF
IF X1 > 3 AND X1 < 20 AND Y1 = 6 AND CONTROL1 = 1 AND CONTROL2 = 1 AND
ACASE2 = PEEK(258) THEN
COLOR 0, 7: LOCATE 5, 5: PRINT " New program    "
COLOR 0, 7: LOCATE 6, 5: PRINT " Open program..."
COLOR 0, 14: LOCATE 7, 5: PRINT " Save program..."
COLOR 0, 7: LOCATE 9, 5: PRINT " Create file     "
COLOR 0, 7: LOCATE 10, 5: PRINT " Load file       "
COLOR 0, 7: LOCATE 12, 5: PRINT " Print          "
COLOR 0, 7: LOCATE 13, 5: PRINT " Exit           "
POKE 263, 96
POKE 264, 0
ACASE1 = 0: ACASE2 = 0: ACASE3 = 1: ACASE4 = 0:
ACASE5 = 0: ACASE6 = 0: ACASE7 = 0:
```

52

```
POKE 256, ACASE1: POKE 257, ACASE2
POKE 258, ACASE3: POKE 259, ACASE4
POKE 260, ACASE5: POKE 261, ACASE6
POKE 262, ACASE7
END IF


IF X1 > 3 AND X1 < 20 AND Y1 = 8 AND CONTROL1 = 1 AND CONTROL2 = 1 AND
ACASE4 = PEEK(259) THEN
COLOR 0, 7: LOCATE 5, 5: PRINT " New program    "
COLOR 0, 7: LOCATE 6, 5: PRINT " Open program..."
COLOR 0, 7: LOCATE 7, 5: PRINT " Save program..."
COLOR 0, 14: LOCATE 9, 5: PRINT " Create file    "
COLOR 0, 7: LOCATE 10, 5: PRINT " Load file      "
COLOR 0, 7: LOCATE 12, 5: PRINT " Print          "
COLOR 0, 7: LOCATE 13, 5: PRINT " Exit           "
POKE 263, 96
POKE 264, 0
ACASE1 = 0: ACASE2 = 0: ACASE3 = 0: ACASE4 = 1:
ACASE5 = 0: ACASE6 = 0: ACASE7 = 0:
POKE 256, ACASE1: POKE 257, ACASE2
POKE 258, ACASE3: POKE 259, ACASE4
POKE 260, ACASE5: POKE 261, ACASE6
POKE 262, ACASE7
END IF
IF X1 > 3 AND X1 < 20 AND Y1 = 9 AND CONTROL1 = 1 AND CONTROL2 = 1 AND
ACASE5 = PEEK(260) THEN
```

53

```
COLOR 0, 7: LOCATE 5, 5: PRINT " New program    "
COLOR 0, 7: LOCATE 6, 5: PRINT " Open program..."
COLOR 0, 7: LOCATE 7, 5: PRINT " Save program..."
COLOR 0, 7: LOCATE 9, 5: PRINT " Create file    "
COLOR 0, 14: LOCATE 10, 5: PRINT " Load file      "
COLOR 0, 7: LOCATE 12, 5: PRINT " Print          "
COLOR 0, 7: LOCATE 13, 5: PRINT " Exit           "
POKE 263, 96
POKE 264, 0
ACASE1 = 0: ACASE2 = 0: ACASE3 = 0: ACASE4 = 0:
ACASE5 = 1: ACASE6 = 0: ACASE7 = 0:
POKE 256, ACASE1: POKE 257, ACASE2
POKE 258, ACASE3: POKE 259, ACASE4
POKE 260, ACASE5: POKE 261, ACASE6
POKE 262, ACASE7
END IF


IF X1 > 3 AND X1 < 20 AND Y1 = 11 AND CONTROL1 = 1 AND CONTROL2 = 1 AND
ACASE6 = PEEK(261) THEN
COLOR 0, 7: LOCATE 5, 5: PRINT " New program    "
COLOR 0, 7: LOCATE 6, 5: PRINT " Open program..."
COLOR 0, 7: LOCATE 7, 5: PRINT " Save program..."
COLOR 0, 7: LOCATE 9, 5: PRINT " Create file    "
COLOR 0, 7: LOCATE 10, 5: PRINT " Load file      "
COLOR 0, 14: LOCATE 12, 5: PRINT " Print          "
COLOR 0, 7: LOCATE 13, 5: PRINT " Exit           "
POKE 263, 96
```

```
POKE 264, 0

ACASE1 = 0: ACASE2 = 0: ACASE3 = 0: ACASE4 = 0:

ACASE5 = 0: ACASE6 = 1: ACASE7 = 0:

POKE 256, ACASE1: POKE 257, ACASE2

POKE 258, ACASE3: POKE 259, ACASE4

POKE 260, ACASE5: POKE 261, ACASE6

POKE 262, ACASE7

END IF

IF X1 > 3 AND X1 < 20 AND Y1 = 12 AND CONTROL1 = 1 AND CONTROL2 = 1 AND

ACASE6 = PEEK(262) THEN

COLOR 0, 7: LOCATE 5, 5: PRINT " New program    "

COLOR 0, 7: LOCATE 6, 5: PRINT " Open program..."

COLOR 0, 7: LOCATE 7, 5: PRINT " Save program..."

COLOR 0, 7: LOCATE 9, 5: PRINT " Create file    "

COLOR 0, 7: LOCATE 10, 5: PRINT " Load file      "

COLOR 0, 7: LOCATE 12, 5: PRINT " Print          "

COLOR 0, 14: LOCATE 13, 5: PRINT " Exit          "

POKE 263, 96

POKE 264, 0

ACASE1 = 0: ACASE2 = 0: ACASE3 = 0: ACASE4 = 0:

ACASE5 = 0: ACASE6 = 0: ACASE7 = 1:

POKE 256, ACASE1: POKE 257, ACASE2

POKE 258, ACASE3: POKE 259, ACASE4

POKE 260, ACASE5: POKE 261, ACASE6

POKE 262, ACASE7

END IF
```

```
IF X1 > 16 AND X1 < 34 AND Y1 = 4 AND CONTROL1 = 2 AND CONTROL2 = 1 AND
ACASE1 = PEEK(256) THEN
COLOR 0, 14: LOCATE 5, 18: PRINT " New person      "
COLOR 0, 7: LOCATE 6, 18: PRINT " Open person     "
COLOR 0, 7: LOCATE 7, 18: PRINT " Save person     "
COLOR 0, 7: LOCATE 9, 18: PRINT " Create pfile    "
COLOR 0, 7: LOCATE 10, 18: PRINT " Load pfile      "
COLOR 0, 7: LOCATE 12, 18: PRINT " Print           "
C = 96
POKE 263, 96
POKE 264, 0
ACASE1 = 1: ACASE2 = 0: ACASE3 = 0: ACASE4 = 0:
ACASE5 = 0: ACASE6 = 0: ACASE7 = 0:
POKE 256, ACASE1: POKE 257, ACASE2
POKE 258, ACASE3: POKE 259, ACASE4
POKE 260, ACASE5: POKE 261, ACASE6
POKE 262, ACASE7
END IF

IF X1 > 16 AND X1 < 34 AND Y1 = 5 AND CONTROL1 = 2 AND CONTROL2 = 1 AND
ACASE2 = PEEK(257) THEN
COLOR 0, 7: LOCATE 5, 18: PRINT " New person      "
COLOR 0, 14: LOCATE 6, 18: PRINT " Open person     "
COLOR 0, 7: LOCATE 7, 18: PRINT " Save person     "
COLOR 0, 7: LOCATE 9, 18: PRINT " Create pfile    "
COLOR 0, 7: LOCATE 10, 18: PRINT " Load pfile      "
```

```
COLOR 0, 7: LOCATE 12, 18: PRINT " Print          "
C = 96
POKE 263, 96
POKE 264, 0
ACASE1 = 0: ACASE2 = 1: ACASE3 = 0: ACASE4 = 0:
ACASE5 = 0: ACASE6 = 0: ACASE7 = 0:
POKE 256, ACASE1: POKE 257, ACASE2
POKE 258, ACASE3: POKE 259, ACASE4
POKE 260, ACASE5: POKE 261, ACASE6
POKE 262, ACASE7
END IF


IF X1 > 16 AND X1 < 34 AND Y1 = 6 AND CONTROL1 = 2 AND CONTROL2 = 1 AND
ACASE3 = PEEK(258) THEN
COLOR 0, 7: LOCATE 5, 18: PRINT " New person    "
COLOR 0, 7: LOCATE 6, 18: PRINT " Open person    "
COLOR 0, 14: LOCATE 7, 18: PRINT " Save person     "
COLOR 0, 7: LOCATE 9, 18: PRINT " Create pfile    "
COLOR 0, 7: LOCATE 10, 18: PRINT " Load pfile      "
COLOR 0, 7: LOCATE 12, 18: PRINT " Print          "
C = 96
POKE 263, 96
POKE 264, 0
ACASE1 = 0: ACASE2 = 0: ACASE3 = 1: ACASE4 = 0:
ACASE5 = 0: ACASE6 = 0: ACASE7 = 0:
POKE 256, ACASE1: POKE 257, ACASE2
POKE 258, ACASE3: POKE 259, ACASE4
```

```
POKE 260, ACASE5: POKE 261, ACASE6
POKE 262, ACASE7
END IF


IF X1 > 16 AND X1 < 34 AND Y1 = 8 AND CONTROL1 = 2 AND CONTROL2 = 1 AND
ACASE4 = PEEK(259) THEN
COLOR 0, 7: LOCATE 5, 18: PRINT " New person     "
COLOR 0, 7: LOCATE 6, 18: PRINT " Open person    "
COLOR 0, 7: LOCATE 7, 18: PRINT " Save person    "
COLOR 0, 14: LOCATE 9, 18: PRINT " Create pfile   "
COLOR 0, 7: LOCATE 10, 18: PRINT " Load pfile     "
COLOR 0, 7: LOCATE 12, 18: PRINT " Print          "
C = 96
POKE 263, 96
POKE 264, 0
ACASE1 = 0: ACASE2 = 0: ACASE3 = 0: ACASE4 = 1:
ACASE5 = 0: ACASE6 = 0: ACASE7 = 0:
POKE 256, ACASE1: POKE 257, ACASE2
POKE 258, ACASE3: POKE 259, ACASE4
POKE 260, ACASE5: POKE 261, ACASE6
POKE 262, ACASE7
END IF


IF X1 > 16 AND X1 < 34 AND Y1 = 9 AND CONTROL1 = 2 AND CONTROL2 = 1 AND
ACASE5 = PEEK(260) THEN
COLOR 0, 7: LOCATE 5, 18: PRINT " New person     "
COLOR 0, 7: LOCATE 6, 18: PRINT " Open person    "
COLOR 0, 7: LOCATE 7, 18: PRINT " Save person    "
COLOR 0, 7: LOCATE 9, 18: PRINT " Create pfile   "
```

```
COLOR 0, 14: LOCATE 10, 18: PRINT " Load pfile     "
COLOR 0, 7: LOCATE 12, 18: PRINT " Print         "
C = 96
POKE 263, 96
POKE 264, 0
ACASE1 = 0: ACASE2 = 0: ACASE3 = 0: ACASE4 = 0:
ACASE5 = 1: ACASE6 = 0: ACASE7 = 0:
POKE 256, ACASE1: POKE 257, ACASE2
POKE 258, ACASE3: POKE 259, ACASE4
POKE 260, ACASE5: POKE 261, ACASE6
POKE 262, ACASE7
END IF
IF X1 > 16 AND X1 < 34 AND Y1 = 11 AND CONTROL1 = 2 AND CONTROL2 = 1
AND ACASE6 = PEEK(261) THEN
COLOR 0, 7: LOCATE 5, 18: PRINT " New person     "
COLOR 0, 7: LOCATE 6, 18: PRINT " Open person    "
COLOR 0, 7: LOCATE 7, 18: PRINT " Save person    "
COLOR 0, 7: LOCATE 9, 18: PRINT " Create pfile   "
COLOR 0, 7: LOCATE 10, 18: PRINT " Load pfile     "
COLOR 0, 14: LOCATE 12, 18: PRINT " Print         "
C = 96
POKE 263, 96
POKE 264, 0
ACASE1 = 0: ACASE2 = 0: ACASE3 = 0: ACASE4 = 0:
```

```
ACASE5 = 0: ACASE6 = 1: ACASE7 = 0:
POKE 256, ACASE1: POKE 257, ACASE2
POKE 258, ACASE3: POKE 259, ACASE4
POKE 260, ACASE5: POKE 261, ACASE6
POKE 262, ACASE7
END IF
IF X1 > 34 AND X1 < 49 AND Y1 = 4 AND CONTROL1 = 3 AND CONTROL2 = 1 AND
ACASE1 = PEEK(256) THEN
COLOR 0, 14: LOCATE 5, 36: PRINT " Person...    "
COLOR 0, 7: LOCATE 6, 36: PRINT " File...      "
COLOR 0, 7: LOCATE 8, 36: PRINT " Message...   "
POKE 263, 96
POKE 264, 0
ACASE1 = 1: ACASE2 = 0: ACASE3 = 0: ACASE4 = 0:
ACASE5 = 0: ACASE6 = 0: ACASE7 = 0:
POKE 256, ACASE1: POKE 257, ACASE2
POKE 258, ACASE3: POKE 259, ACASE4
POKE 260, ACASE5: POKE 261, ACASE6
POKE 262, ACASE7
END IF
IF X1 > 34 AND X1 < 49 AND Y1 = 5 AND CONTROL1 = 3 AND CONTROL2 = 1 AND
ACASE2 = PEEK(257) THEN
COLOR 0, 7: LOCATE 5, 36: PRINT " Person...    "
COLOR 0, 14: LOCATE 6, 36: PRINT " File...      "
COLOR 0, 7: LOCATE 8, 36: PRINT " Message...   "
POKE 263, 96
POKE 264, 0
```

```
ACASE1 = 0: ACASE2 = 1: ACASE3 = 0: ACASE4 = 0:
ACASE5 = 0: ACASE6 = 0: ACASE7 = 0:
POKE 256, ACASE1: POKE 257, ACASE2
POKE 258, ACASE3: POKE 259, ACASE4
POKE 260, ACASE5: POKE 261, ACASE6
POKE 262, ACASE7
END IF
IF X1 > 34 AND X1 < 49 AND Y1 = 7 AND CONTROL1 = 3 AND CONTROL2 = 1 AND
ACASE3 = PEEK(258) THEN
COLOR 0, 7: LOCATE 5, 36: PRINT " Person...    "
COLOR 0, 7: LOCATE 6, 36: PRINT " File...     "
COLOR 0, 14: LOCATE 8, 36: PRINT " Message...   "
POKE 263, 96
POKE 264, 0
ACASE1 = 0: ACASE2 = 0: ACASE3 = 1: ACASE4 = 0:
ACASE5 = 0: ACASE6 = 0: ACASE7 = 0:
POKE 256, ACASE1: POKE 257, ACASE2
POKE 258, ACASE3: POKE 259, ACASE4
POKE 260, ACASE5: POKE 261, ACASE6
POKE 262, ACASE7
END IF

IF X1 > 49 AND X1 < 64 AND Y1 = 4 AND CONTROL1 = 4 AND CONTROL2 = 1 AND
ACASE1 = PEEK(256) THEN
COLOR 0, 14: LOCATE 5, 51: PRINT " Person read  "
COLOR 0, 7: LOCATE 6, 51: PRINT " File read    "
COLOR 0, 7: LOCATE 8, 51: PRINT " Message read "
```

```
POKE 263, 96

POKE 264, 0

ACASE1 = 1: ACASE2 = 0: ACASE3 = 0: ACASE4 = 0:

ACASE5 = 0: ACASE6 = 0: ACASE7 = 0:

POKE 256, ACASE1: POKE 257, ACASE2

POKE 258, ACASE3: POKE 259, ACASE4

POKE 260, ACASE5: POKE 261, ACASE6

POKE 262, ACASE7

END IF

IF X1 > 49 AND X1 < 64 AND Y1 = 5 AND CONTROL1 = 4 AND CONTROL2 = 1 AND

ACASE2 = PEEK(257) THEN

COLOR 0, 7: LOCATE 5, 51: PRINT " Person read  "

COLOR 0, 14: LOCATE 6, 51: PRINT " File read    "

COLOR 0, 7: LOCATE 8, 51: PRINT " Message read "

POKE 263, 96

POKE 264, 0

ACASE1 = 0: ACASE2 = 1: ACASE3 = 0: ACASE4 = 0:

ACASE5 = 0: ACASE6 = 0: ACASE7 = 0:

POKE 256, ACASE1: POKE 257, ACASE2

POKE 258, ACASE3: POKE 259, ACASE4

POKE 260, ACASE5: POKE 261, ACASE6

POKE 262, ACASE7

END IF

IF X1 > 49 AND X1 < 64 AND Y1 = 7 AND CONTROL1 = 4 AND CONTROL2 = 1 AND

ACASE3 = PEEK(258) THEN

COLOR 0, 7: LOCATE 5, 51: PRINT " Person read  "

COLOR 0, 7: LOCATE 6, 51: PRINT " File read    "
```

```
COLOR 0, 14: LOCATE 8, 51: PRINT " Message read "
POKE 263, 96
POKE 264, 0
ACASE1 = 0: ACASE2 = 0: ACASE3 = 1: ACASE4 = 0:
ACASE5 = 0: ACASE6 = 0: ACASE7 = 0:
POKE 256, ACASE1: POKE 257, ACASE2
POKE 258, ACASE3: POKE 259, ACASE4
POKE 260, ACASE5: POKE 261, ACASE6
POKE 262, ACASE7
END IF

IF X1 > 62 AND X1 < 77 AND Y1 = 4 AND CONTROL1 = 5 AND CONTROL2 = 1 AND
ACASE1 = PEEK(256) THEN
COLOR 0, 14: LOCATE 5, 64: PRINT " Prsn delete  "
COLOR 0, 7: LOCATE 6, 64: PRINT " File delete  "
COLOR 0, 7: LOCATE 8, 64: PRINT " Msg delete   "
POKE 263, 96
POKE 264, 0
ACASE1 = 1: ACASE2 = 0: ACASE3 = 0: ACASE4 = 0:
ACASE5 = 0: ACASE6 = 0: ACASE7 = 0:
POKE 256, ACASE1: POKE 257, ACASE2
POKE 258, ACASE3: POKE 259, ACASE4
POKE 260, ACASE5: POKE 261, ACASE6
POKE 262, ACASE7
END IF
IF X1 > 62 AND X1 < 77 AND Y1 = 5 AND CONTROL1 = 5 AND CONTROL2 = 1 AND
ACASE2 = PEEK(257) THEN
```

```
COLOR 0, 7: LOCATE 5, 64: PRINT " Prsn delete  "
COLOR 0, 14: LOCATE 6, 64: PRINT " File delete  "
COLOR 0, 7: LOCATE 8, 64: PRINT " Msg delete   "
POKE 263, 96
POKE 264, 0
ACASE1 = 0: ACASE2 = 1: ACASE3 = 0: ACASE4 = 0:
ACASE5 = 0: ACASE6 = 0: ACASE7 = 0:
POKE 256, ACASE1: POKE 257, ACASE2
POKE 258, ACASE3: POKE 259, ACASE4
POKE 260, ACASE5: POKE 261, ACASE6
POKE 262, ACASE7
END IF
IF X1 > 62 AND X1 < 77 AND Y1 = 7 AND CONTROL1 = 5 AND CONTROL2 = 1 AND
ACASE3 = PEEK(258) THEN
COLOR 0, 7: LOCATE 5, 64: PRINT " Prsn delete  "
COLOR 0, 7: LOCATE 6, 64: PRINT " File delete  "
COLOR 0, 14: LOCATE 8, 64: PRINT " Msg delete   "
POKE 263, 96
POKE 264, 0
ACASE1 = 0: ACASE2 = 0: ACASE3 = 1: ACASE4 = 0:
ACASE5 = 0: ACASE6 = 0: ACASE7 = 0:
POKE 256, ACASE1: POKE 257, ACASE2
POKE 258, ACASE3: POKE 259, ACASE4
POKE 260, ACASE5: POKE 261, ACASE6
POKE 262, ACASE7
END IF
```

```
IF X1 > 3 AND X1 < 21 AND Y1 = 10 AND CONTROL1 = 6 AND CONTROL2 = 1 AND
ACASE1 = PEEK(256) THEN
COLOR 0, 14: LOCATE 11, 5: PRINT " Prsn CHANGE      "
COLOR 0, 7: LOCATE 12, 5: PRINT " File CHANGE     "
COLOR 0, 7: LOCATE 14, 5: PRINT " Msg CHANGE      "
COLOR 0, 7: LOCATE 16, 5: PRINT " Pasword CHANGE  "
POKE 263, 96
POKE 264, 0
ACASE1 = 1: ACASE2 = 0: ACASE3 = 0: ACASE4 = 0:
ACASE5 = 0: ACASE6 = 0: ACASE7 = 0:
POKE 256, ACASE1: POKE 257, ACASE2
POKE 258, ACASE3: POKE 259, ACASE4
POKE 260, ACASE5: POKE 261, ACASE6
POKE 262, ACASE7
END IF
IF X1 > 3 AND X1 < 21 AND Y1 = 11 AND CONTROL1 = 6 AND CONTROL2 = 1 AND
ACASE2 = PEEK(257) THEN
COLOR 0, 7: LOCATE 11, 5: PRINT " Prsn CHANGE      "
COLOR 0, 14: LOCATE 12, 5: PRINT " File CHANGE     "
COLOR 0, 7: LOCATE 14, 5: PRINT " Msg CHANGE      "
COLOR 0, 7: LOCATE 16, 5: PRINT " Pasword CHANGE  "
POKE 263, 96
POKE 264, 0
ACASE1 = 0: ACASE2 = 1: ACASE3 = 0: ACASE4 = 0:
ACASE5 = 0: ACASE6 = 0: ACASE7 = 0:
POKE 256, ACASE1: POKE 257, ACASE2
POKE 258, ACASE3: POKE 259, ACASE4
```

```
POKE 260, ACASE5: POKE 261, ACASE6
POKE 262, ACASE7
END IF
IF X1 > 3 AND X1 < 21 AND Y1 = 13 AND CONTROL1 = 6 AND CONTROL2 = 1 AND
ACASE3 = PEEK(258) THEN
COLOR 0, 7: LOCATE 11, 5: PRINT " Prsn CHANGE      "
COLOR 0, 7: LOCATE 12, 5: PRINT " File CHANGE      "
COLOR 0, 14: LOCATE 14, 5: PRINT " Msg CHANGE       "
COLOR 0, 7: LOCATE 16, 5: PRINT " Pasword CHANGE  "
POKE 263, 96
POKE 264, 0
ACASE1 = 0: ACASE2 = 0: ACASE3 = 1: ACASE4 = 0:
ACASE5 = 0: ACASE6 = 0: ACASE7 = 0:
POKE 256, ACASE1: POKE 257, ACASE2
POKE 258, ACASE3: POKE 259, ACASE4
POKE 260, ACASE5: POKE 261, ACASE6
POKE 262, ACASE7
END IF
IF X1 > 3 AND X1 < 21 AND Y1 = 15 AND CONTROL1 = 6 AND CONTROL2 = 1 AND
ACASE4 = PEEK(259) THEN
COLOR 0, 7: LOCATE 11, 5: PRINT " Prsn CHANGE      "
COLOR 0, 7: LOCATE 12, 5: PRINT " File CHANGE      "
COLOR 0, 7: LOCATE 14, 5: PRINT " Msg CHANGE       "
COLOR 0, 14: LOCATE 16, 5: PRINT " Pasword CHANGE  "
POKE 263, 96
POKE 264, 0
ACASE1 = 0: ACASE2 = 0: ACASE3 = 0: ACASE4 = 1:
```

66

```
ACASE5 = 0: ACASE6 = 0: ACASE7 = 0:
POKE 256, ACASE1: POKE 257, ACASE2
POKE 258, ACASE3: POKE 259, ACASE4
POKE 260, ACASE5: POKE 261, ACASE6
POKE 262, ACASE7
END IF
END SUB
SUB EXPLAIN (EX, EY, ECOLOR, WEXPLAIN!)
IF WEXPLAIN = 1 AND PEEK(400) = 0 THEN
A$ = "OPEN FILE": b$ = " is active"
kARE EY, EX - 1, 1, 58, 0, 0, 15
POKE 400, 1
COLOR ECOLOR, 0: LOCATE EY, EX: PRINT A$
COLOR 7, 0: LOCATE EY, EX + LEN(A$): PRINT b$
END IF
IF WEXPLAIN = 2 AND PEEK(401) = 0 THEN
kARE EY, EX - 1, 1, 58, 0, 0, 15
A$ = "NEW PERSON ENTERY": b$ = " is active"
POKE 401, 1
COLOR ECOLOR, 0: LOCATE EY, EX: PRINT A$
COLOR 7, 0: LOCATE EY, EX + LEN(A$): PRINT b$
END IF
IF WEXPLAIN = 3 AND PEEK(402) = 0 THEN
A$ = "INFORMATION APPEND": b$ = " is active"
kARE EY, EX - 1, 1, 58, 0, 0, 15
POKE 402, 1
COLOR ECOLOR, 0: LOCATE EY, EX: PRINT A$
```

```
COLOR 7, 0: LOCATE EY, EX + LEN(A$): PRINT b$
END IF
IF WEXPLAIN = 4 AND PEEK(403) = 0 THEN
A$ = "INFORMATION READING": b$ = " is active"
kARE EY, EX - 1, 1, 58, 0, 0, 15
POKE 403, 1
COLOR ECOLOR, 0: LOCATE EY, EX: PRINT A$
COLOR 7, 0: LOCATE EY, EX + LEN(A$): PRINT b$
END IF
IF WEXPLAIN = 5 AND PEEK(404) = 0 THEN
A$ = "INFORMATION DELETING": b$ = " is active"
kARE EY, EX - 1, 1, 58, 0, 0, 15
POKE 404, 1
COLOR ECOLOR, 0: LOCATE EY, EX: PRINT A$
COLOR 7, 0: LOCATE EY, EX + LEN(A$): PRINT b$
END IF

IF WEXPLAIN = 6 AND PEEK(405) = 0 THEN
A$ = "CHANGE ABOUT PASWORD,MESAGE INFORMATION...": b$ = " is active"
kARE EY, EX - 1, 1, 58, 0, 0, 15
POKE 405, 1
COLOR ECOLOR, 0: LOCATE EY, EX: PRINT A$
COLOR 7, 0: LOCATE EY, EX + LEN(A$): PRINT b$

END IF
IF WEXPLAIN = 7 AND PEEK(406) = 0 THEN
A$ = "DIRECTLY WHEN PRESS ENTER BUTTON OR MOUSE...": b$ = " will active"
```

```
kARE EY, EX - 1, 1, 58, 0, 0, 15
POKE 406, 1
COLOR ECOLOR, 0: LOCATE EY, EX: PRINT A$
COLOR 7, 0: LOCATE EY, EX + LEN(A$): PRINT b$
END IF
IF WEXPLAIN = 8 AND PEEK(407) = 0 THEN
A$ = "HELP MENU": b$ = " is active (HOW YOU CAN USE THIS)"
kARE EY, EX - 1, 1, 58, 0, 0, 15
POKE 407, 1
COLOR ECOLOR, 0: LOCATE EY, EX: PRINT A$
COLOR 7, 0: LOCATE EY, EX + LEN(A$): PRINT b$
END IF
END SUB
SUB ezero
FOR t = 0 TO 7
POKE 400 + t, 0
NEXT
END SUB
FUNCTION getir (X, Y, r) STATIC
DEF SEG = &HB800
getir = PEEK(((X - 1) * 80 + (Y - 1)) * 2)
r = PEEK((((X - 1) * 80 + (Y - 1)) * 2) + 1)
DEF SEG
END FUNCTION

SUB kARE (A, b, C, D, E, F, G)
IF G = 0 THEN
```

```
COLOR E, F: LOCATE A, b: PRINT STRING$(D, 205)
COLOR E, F: LOCATE A, b: PRINT "É"
COLOR E, F: LOCATE A, b + D: PRINT "»"
FOR Y = 1 TO C
COLOR E, F: LOCATE A + Y, b: PRINT "º"
COLOR E, F: LOCATE A + Y, b + D: PRINT "º"
NEXT
COLOR E, F: LOCATE A + Y, b: PRINT STRING$(D, 205)
COLOR E, F: LOCATE A + Y, b: PRINT "È"
COLOR E, F: LOCATE A + Y, b + D: PRINT "¼"
END IF
IF G = 1 THEN
COLOR E, F: LOCATE A, b: PRINT STRING$(D, 196)
COLOR E, F: LOCATE A, b: PRINT "É"
COLOR E, F: LOCATE A, b + D: PRINT "»"
FOR Y = 1 TO C
COLOR E, F: LOCATE A + Y, b: PRINT "º"
COLOR E, F: LOCATE A + Y, b + D: PRINT "º"
NEXT
COLOR E, F: LOCATE A + Y, b: PRINT STRING$(D, 196)
COLOR E, F: LOCATE A + Y, b: PRINT "È"
COLOR E, F: LOCATE A + Y, b + D: PRINT "¼"
END IF
IF G = 2 THEN
COLOR E, F: LOCATE A, b: PRINT STRING$(D, 196)
COLOR E, F: LOCATE A, b: PRINT "Ú"
COLOR E, F: LOCATE A, b + D: PRINT "¿"
```

```
FOR Y = 1 TO C
COLOR E, F: LOCATE A + Y, b: PRINT "³"
COLOR E, F: LOCATE A + Y, b + D: PRINT "³"
NEXT
COLOR E, F: LOCATE A + Y, b: PRINT STRING$(D, 196)
COLOR E, F: LOCATE A + Y, b: PRINT "À"
COLOR E, F: LOCATE A + Y, b + D: PRINT "Ù"
END IF
IF G = 3 THEN
COLOR E, F: LOCATE A, b: PRINT STRING$(D, 220)
COLOR E, F: LOCATE A, b: PRINT "Ú"
COLOR E, F: LOCATE A, b + D: PRINT "¿"
FOR Y = 1 TO C
COLOR E, F: LOCATE A + Y, b: PRINT "İ"
COLOR E, F: LOCATE A + Y, b + D: PRINT "Ş"
NEXT
COLOR E, F: LOCATE A + Y, b: PRINT STRING$(D, 223)
COLOR E, F: LOCATE A + Y, b: PRINT "À"
COLOR E, F: LOCATE A + Y, b + D: PRINT "Ù"
END IF
IF G = 4 THEN
COLOR E, F: LOCATE A, b: PRINT STRING$(D, 219)
COLOR E, F: LOCATE A, b: PRINT "É"
COLOR E, F: LOCATE A, b + D: PRINT "»"
FOR Y = 1 TO C
COLOR E, F: LOCATE A + Y, b: PRINT "º"
COLOR E, F: LOCATE A + Y, b + D: PRINT "º"
```

71

```
NEXT
COLOR E, F: LOCATE A + Y, b: PRINT STRING$(D, 205)
COLOR E, F: LOCATE A + Y, b: PRINT "È"
COLOR E, F: LOCATE A + Y, b + D: PRINT "¼"
END IF

IF G = 5 THEN
COLOR E, F: LOCATE A, b: PRINT STRING$(D, 220)
COLOR E, F: LOCATE A, b: PRINT "Ş"
COLOR E, F: LOCATE A, b + D: PRINT "İ"
FOR Y = 1 TO C
COLOR E, F: LOCATE A + Y, b: PRINT "Ş"
COLOR E, F: LOCATE A + Y, b + D: PRINT "İ"
NEXT
COLOR E, F: LOCATE A + Y, b: PRINT STRING$(D, 223)
COLOR E, F: LOCATE A + Y, b: PRINT "Ş"
COLOR E, F: LOCATE A + Y, b + D: PRINT "İ"
END IF
IF G = 6 THEN
COLOR E, F: LOCATE A, b: PRINT STRING$(D, 196)
COLOR E, F: LOCATE A, b: PRINT "Ú"
COLOR E, F: LOCATE A, b + D: PRINT "¿"
FOR Y = 1 TO C
COLOR E, F: LOCATE A + Y, b: PRINT "İ"
COLOR E, F: LOCATE A + Y, b + D: PRINT "Ş"
NEXT
COLOR E, F: LOCATE A + Y, b: PRINT STRING$(D, 223)
```

```
COLOR E, F: LOCATE A + Y, b: PRINT "À"
COLOR E, F: LOCATE A + Y, b + D: PRINT "Ù"
END IF
IF G = 7 THEN
'COLOR E, F: LOCATE A, B: PRINT STRING$(D, 196)
'COLOR E, F: LOCATE A, B: PRINT "Ú"
'COLOR E, F: LOCATE A, B + D: PRINT "¿"
FOR Y = 1 TO C
COLOR E, F: LOCATE A + Y, b: PRINT "İ"
COLOR E, F: LOCATE A + Y, b + D: PRINT "Ş"
NEXT
COLOR E, F: LOCATE A + Y, b: PRINT STRING$(D, 223)
COLOR E, F: LOCATE A + Y, b: PRINT "À"
COLOR E, F: LOCATE A + Y, b + D: PRINT "Ù"
END IF
IF G = 8 THEN
COLOR E, F: LOCATE A, b: PRINT STRING$(D, 196)
COLOR E, F: LOCATE A, b: PRINT "Ú"
COLOR E, F: LOCATE A, b + D: PRINT "¿"
FOR Y = 1 TO C
COLOR E, F: LOCATE A + Y, b: PRINT "İ"
COLOR E, F: LOCATE A + Y, b + D: PRINT "Ş"
NEXT
'COLOR E, F: LOCATE A + Y, B: PRINT STRING$(D, 223)
'COLOR E, F: LOCATE A + Y, B: PRINT "À"
'COLOR E, F: LOCATE A + Y, B + D: PRINT "Ù"
END IF
```

```
IF G = 9 THEN
'COLOR E, F: LOCATE A, B: PRINT STRING$(D, 196)
'COLOR E, F: LOCATE A, B: PRINT "Ú"
'COLOR E, F: LOCATE A, B + D: PRINT "¿"
FOR Y = 1 TO C
COLOR E, F: LOCATE A + Y, b: PRINT "³"
COLOR E, F: LOCATE A + Y, b + D: PRINT "³"
NEXT
COLOR E, F: LOCATE A + Y, b: PRINT STRING$(D, 196)
COLOR E, F: LOCATE A + Y, b: PRINT "À"
COLOR E, F: LOCATE A + Y, b + D: PRINT "Ù"
END IF
IF G = 10 THEN
COLOR E, F: LOCATE A, b: PRINT STRING$(D, 196)
COLOR E, F: LOCATE A, b: PRINT "Ú"
COLOR E, F: LOCATE A, b + D: PRINT "¿"
FOR Y = 1 TO C
COLOR E, F: LOCATE A + Y, b: PRINT "³"
COLOR E, F: LOCATE A + Y, b + D: PRINT "³"
NEXT
'COLOR E, F: LOCATE A + Y, B: PRINT STRING$(D, 196)
'COLOR E, F: LOCATE A + Y, B: PRINT "À"
'COLOR E, F: LOCATE A + Y, B + D: PRINT "Ù"
END IF
IF G = 11 THEN
'COLOR E, F: LOCATE A, B: PRINT STRING$(D, 205)
'COLOR E, F: LOCATE A, B: PRINT "É"
```

```
'COLOR E, F: LOCATE A, B + D: PRINT "»"
FOR Y = 1 TO C
COLOR E, F: LOCATE A + Y, b: PRINT "o"
COLOR E, F: LOCATE A + Y, b + D: PRINT "o"
NEXT
COLOR E, F: LOCATE A + Y, b: PRINT STRING$(D, 205)
COLOR E, F: LOCATE A + Y, b: PRINT "È"
COLOR E, F: LOCATE A + Y, b + D: PRINT "¼"
END IF
IF G = 12 THEN
COLOR E, F: LOCATE A, b: PRINT STRING$(D, 205)
COLOR E, F: LOCATE A, b: PRINT "É"
COLOR E, F: LOCATE A, b + D: PRINT "»"
FOR Y = 1 TO C
COLOR E, F: LOCATE A + Y, b: PRINT "o"
COLOR E, F: LOCATE A + Y, b + D: PRINT "o"
NEXT
'COLOR E, F: LOCATE A + Y, B: PRINT STRING$(D, 205)
'COLOR E, F: LOCATE A + Y, B: PRINT "È"
'COLOR E, F: LOCATE A + Y, B + D: PRINT "¼"
END IF

IF G = 13 THEN
COLOR E, F: LOCATE A, b: PRINT STRING$(D, 205)
COLOR E, F: LOCATE A + C, b: PRINT STRING$(D, 205)
END IF
```

```
IF G = 14 THEN
FOR Y = 0 TO C
COLOR E, F: LOCATE A + Y, b: PRINT STRING$(D, 205)
NEXT
END IF
IF G = 15 THEN
FOR Y = 0 TO C
COLOR E, F: LOCATE A + Y, b: PRINT STRING$(D, 219)
NEXT
END IF
IF G = 16 THEN
FOR Y = 0 TO C
COLOR E, F: LOCATE A + Y, b: PRINT STRING$(D, 176)
NEXT
END IF
END SUB
SUB openfile (STP!)
IF STP = 1 THEN
 COLOR 8, 0: LOCATE 17, 2: PRINT STRING$(78, 220)
 COLOR 8: LOCATE 4, 1: PRINT STRING$(80, 219)
 FOR Y = 0 TO 11
 COLOR 8, 0: LOCATE 5 + Y, 2: PRINT STRING$(78, 176)
 NEXT
  kARE 4, 4, 10, 17, 7, 0, 15
  kARE 4, 4, 10, 17, 8, 0, 6
 COLOR 0, 7: LOCATE 5, 6: PRINT "New program    "
 COLOR 0, 7: LOCATE 6, 6: PRINT "Open program..."
```

```
COLOR 0, 7: LOCATE 7, 6: PRINT "Save program..."
COLOR 0, 7: LOCATE 9, 6: PRINT "Create file    "
COLOR 0, 7: LOCATE 10, 6: PRINT "Load file     "
COLOR 0, 7: LOCATE 12, 6: PRINT "Print         "
COLOR 0, 7: LOCATE 13, 6: PRINT "Exit          "
kARE 8, 5, 0, 16, 0, 7, 13
kARE 11, 5, 0, 16, 0, 7, 13
END IF


IF STP = 2 THEN
 COLOR 8, 0: LOCATE 17, 2: PRINT STRING$(78, 220)
 COLOR 8: LOCATE 4, 1: PRINT STRING$(80, 219)
 COLOR 8: LOCATE 4, 1: PRINT STRING$(80, 219)
 FOR Y = 0 TO 11
  COLOR 8, 0: LOCATE 5 + Y, 2: PRINT STRING$(78, 176)
  NEXT
  kARE 4, 17, 9, 18, 7, 0, 15
  kARE 4, 17, 9, 18, 8, 0, 6
COLOR 0, 7: LOCATE 5, 19: PRINT "New person    "
COLOR 0, 7: LOCATE 6, 19: PRINT "Open person   "
COLOR 0, 7: LOCATE 7, 19: PRINT "Save person   "
COLOR 0, 7: LOCATE 9, 19: PRINT "Create pfile  "
COLOR 0, 7: LOCATE 10, 19: PRINT "Load pfile    "
COLOR 0, 7: LOCATE 12, 19: PRINT "Print         "
kARE 8, 18, 0, 17, 0, 7, 13
kARE 11, 18, 0, 17, 0, 7, 13
END IF
```

```
IF STP = 3 THEN
 COLOR 8, 0: LOCATE 17, 2: PRINT STRING$(78, 220)
 COLOR 8: LOCATE 4, 1: PRINT STRING$(80, 219)
 COLOR 8: LOCATE 4, 1: PRINT STRING$(80, 219)
 FOR Y = 0 TO 11
   COLOR 8, 0: LOCATE 5 + Y, 2: PRINT STRING$(78, 176)
   NEXT
   kARE 4, 35, 4, 15, 7, 0, 15
   kARE 4, 35, 4, 15, 8, 0, 6
 COLOR 0, 7: LOCATE 5, 37: PRINT "Person... "
 COLOR 0, 7: LOCATE 6, 37: PRINT "File...   "
 COLOR 0, 7: LOCATE 8, 37: PRINT "Message..."
 kARE 7, 36, 0, 14, 0, 7, 13
 END IF

IF STP = 4 THEN
 COLOR 8, 0: LOCATE 17, 2: PRINT STRING$(78, 220)
 COLOR 8: LOCATE 4, 1: PRINT STRING$(80, 219)
 COLOR 8: LOCATE 4, 1: PRINT STRING$(80, 219)
 FOR Y = 0 TO 11
   COLOR 8, 0: LOCATE 5 + Y, 2: PRINT STRING$(78, 176)
   NEXT
   kARE 4, 50, 4, 15, 7, 0, 15
   kARE 4, 50, 4, 15, 8, 0, 6
 COLOR 0, 7: LOCATE 5, 52: PRINT "Person read "
 COLOR 0, 7: LOCATE 6, 52: PRINT "File read   "
```

```
COLOR 0, 7: LOCATE 8, 52: PRINT "Message read"
kARE 7, 51, 0, 14, 0, 7, 13
END IF


IF STP = 5 THEN
 COLOR 8, 0: LOCATE 17, 2: PRINT STRING$(78, 220)
 COLOR 8: LOCATE 4, 1: PRINT STRING$(80, 219)
 COLOR 8: LOCATE 4, 1: PRINT STRING$(80, 219)
 FOR Y = 0 TO 11
  COLOR 8, 0: LOCATE 5 + Y, 2: PRINT STRING$(78, 176)
  NEXT
  kARE 4, 63, 5, 15, 7, 0, 15
  kARE 4, 63, 5, 15, 8, 0, 6
COLOR 0, 7: LOCATE 5, 65: PRINT "Prsn delete "
COLOR 0, 7: LOCATE 6, 65: PRINT "File delete "
COLOR 0, 7: LOCATE 8, 65: PRINT "Msg delete  "
kARE 7, 64, 0, 14, 0, 7, 13
END IF


IF STP = 6 THEN
 COLOR 8, 0: LOCATE 17, 2: PRINT STRING$(78, 220)
 COLOR 8: LOCATE 4, 1: PRINT STRING$(80, 219)
 COLOR 8: LOCATE 4, 1: PRINT STRING$(80, 219)
 FOR Y = 0 TO 11
  COLOR 8, 0: LOCATE 5 + Y, 2: PRINT STRING$(78, 176)
  NEXT
  kARE 10, 4, 6, 18, 7, 0, 15
```

```
   kARE 10, 4, 6, 18, 8, 0, 6
COLOR 0, 7: LOCATE 11, 6: PRINT "Prsn CHANGE     "
COLOR 0, 7: LOCATE 12, 6: PRINT "File CHANGE     "
COLOR 0, 7: LOCATE 14, 6: PRINT "Msg CHANGE      "
COLOR 0, 7: LOCATE 16, 6: PRINT "Pasword CHANGE "
kARE 13, 5, 0, 17, 0, 7, 13
kARE 15, 5, 0, 17, 0, 7, 13
END IF


IF STP = 7 THEN
 COLOR 8, 0: LOCATE 17, 2: PRINT STRING$(78, 220)
 COLOR 8: LOCATE 4, 1: PRINT STRING$(80, 219)
 COLOR 8: LOCATE 4, 1: PRINT STRING$(80, 219)
 FOR Y = 0 TO 11
   COLOR 8, 0: LOCATE 5 + Y, 2: PRINT STRING$(78, 176)
   NEXT
 END IF
 IF STP = 8 THEN
 COLOR 8, 0: LOCATE 17, 2: PRINT STRING$(78, 220)
 COLOR 8: LOCATE 4, 1: PRINT STRING$(80, 219)
 COLOR 8: LOCATE 4, 1: PRINT STRING$(80, 219)
 FOR Y = 0 TO 11
   COLOR 8, 0: LOCATE 5 + Y, 2: PRINT STRING$(78, 176)
   NEXT
 END IF
END SUB
SUB yaz (X, Y, A, oz)
```

```
DEF SEG = &HB800
POKE ((X) * 80 + (Y)) * 2, A
POKE (((X) * 80 + (Y)) * 2) + 1, oz
DEF SEG
END SUB
SUB ZERO
ACASE1 = 0: ACASE2 = 0: ACASE3 = 0: ACASE4 = 0:
ACASE5 = 0: ACASE6 = 0: ACASE7 = 0:
POKE 256, ACASE1: POKE 257, ACASE2
POKE 258, ACASE3: POKE 259, ACASE4
POKE 260, ACASE5: POKE 261, ACASE6
POKE 262, ACASE7
END SUB
```

Output of this program on next page:

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
_____
_ìîì OPEN FILE ìî NEW PER. ENTRY îî INF. APPEND î INF. READ   î INF. DELETE îîî_
              +-----------------+_____
_____ | New person      î_____
_____ | Open person     î_____
_____ | Save person     î_____
_____ |-----------------î_____
_____ | Create pfile    î_____
_____ | Load pfile      î       A_____
_____ |-----------------î_____
_____ | Print           î_____
_____ |                 î_____
_____ +                 +_____
_____
_____
_____
_¦¦¦ CHANGE .......   | EXIT FROM PROGRM ¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦_

_ +_E__X__P__L__A__I__N__ __A__B__O__U__T__ __M__E__N__U___+         _
_ |_NEW PERSON ENTERY is active_____|+_____+ _
_ |_____||HELP   [ F1 ]| _
_ +------------------------------------------------------------++-------------+ _
```

figure.4.2.: Output of program of menu controll of Parallel Port Mouse

Left side of opened sub menu of NEW PERSON ENTERY there is a Capital "A". This is parallel mousebar.If we want to change this it can change by you it is not hardly,In programda There is a Head. Head is a variable.and head=65 means parallel mouse bar is capital "A". There for we can change and also we can use our name in parallel mousebar.

In here ı used differen port address this address is for parallel mousebar. Because may appeard the bad track on the menu of display that so I used Display pord addres for getting and putting the Parallel and Serial Mouse Control and Use in Softwareparallel mousebar.

This address is &hb800. But in some computers this address may be different for example may be &hb000. And also I used for color changing specially port address &h3c8 for dedtect this and trible &h3c9 for changing of color.

4.4. Control Of Parallel Mouse in Borlandpascal Program Language

In here I done a program for control of parallel mouse from parallel port and Which value comes I swon below and I explained some program commands shortly.

```
uses dos,crt;
{for mouse we must to use these dos and for clrscr,keypressed etc}
VAR
 mousereg:registers;
 mouseinstalled:boolean;
 P,XX,YY,mouseerror:word;
cas1,DURUM,DCOUNT, AX,AY,TAKE:INTEGER;
{variables for this program}
 LABEL BASLA;

 FUNCTION INITMOUSE:WORD;
{I have explained this part in serial mouse controll.}
 BEGIN
 WITH MOUSEREG DO
  AX:=0;
  INTR($33,MOUSEREG);
  INITMOUSE:=MOUSEREG.AX;
 END;
 PROCEDURE SHOWMOUSE;
 BEGIN
```

```
MOUSEREG.AX:=1;
INTR($33,MOUSEREG);
END;
PROCEDURE HIDEMOUSE;
BEGIN
MOUSEREG.AX:=2;
INTR($33,MOUSEREG);
END;
FUNCTION MOUSEPOSITION( VAR X,Y:WORD):WORD;
BEGIN
MOUSEREG.AX:=3;
INTR($33,MOUSEREG);
WITH MOUSEREG DO
BEGIN
X:=SUCC(CX DIV 8);
Y:=SUCC(DX DIV 8);
MOUSEPOSITION:=BX;
END;
END;


PROCEDURE SETMOUSEPOSITION(MX,MY:WORD);
BEGIN
MOUSEREG.AX:=4;
MOUSEREG.CX:=PRED(MX*8);
MOUSEREG.DX:=PRED(MY*8);
INTR($33,MOUSEREG);
END;
```

```
PROCEDURE SETMOUSEXY(X1,Y1,X2,Y2:WORD);
BEGIN
MOUSEREG.AX:=7;
   MOUSEREG.CX:=PRED(X1*8);
   MOUSEREG.DX:=PRED(X2*8);
   INTR($33,MOUSEREG);
MOUSEREG.AX:=8;
   MOUSEREG.CX:=PRED(Y1*8);
   MOUSEREG.DX:=PRED(Y2*8);
   INTR($33,MOUSEREG);
    END;


procedure test;
var
 a,b,c,d:integer;
 begin
{for test of  menu of parallel port controll }
 for b:=1 to 14 do begin
 textcolor(3); gotoxy(26,4+b);writeln('mmmmmmmmmmmmmmmmmmmmmmmmmm');
 end;
 for a:=1 to 3 do begin
 textcolor(3); gotoxy(37,2+a);writeln('z');
 textcolor(1); gotoxy(35,5+a);writeln('aa^aa');
 textcolor(2); gotoxy(35,9+a);writeln('zafer');
 textcolor(4); gotoxy(35,13+a);writeln('eeVee');
 textcolor(5); gotoxy(28,9+a);writeln('<yyyy');
 textcolor(7); gotoxy(42,9+a);writeln('ŸŸŸŸ>');
```

```
textcolor(2); GOTOXY(35,11);writeln('zafer');
 end;
textcolor(7);
gotoxy(22,2);writeln('CONTROLL OF parallel PORT MOUSE');
textcolor(6);
gotoxy(16,18);writeln('position x   position y    case of click value');
    port[$3c8]:=3;{it changes the color 3}
    port[$3c9]:=0;{mixture of colors 0 red and 30 green and 30 blue}
    port[$3c9]:=30;
    port[$3c9]:=30;
    port[$3c8]:=1;
    port[$3c9]:=0;
    port[$3c9]:=0;
    port[$3c9]:=30;

    port[$3c8]:=2;
    port[$3c9]:=0;
    port[$3c9]:=0;
    port[$3c9]:=30;

    port[$3c8]:=4;
    port[$3c9]:=0;
    port[$3c9]:=0;
    port[$3c9]:=30;

    port[$3c8]:=5;
```

```
    port[$3c9]:=0;
    port[$3c9]:=0;
    port[$3c9]:=30;
    port[$3c8]:=7;
    port[$3c9]:=0;
    port[$3c9]:=0;
    port[$3c9]:=30;


end;
BEGIN
    CLRSCR;

    test;{show menu of controll of parallel porty}
    SETMOUSEPOSITION(1,1);
    SHOWMOUSE;{show mouse bar}
    {SETMOUSEXY(1,1,79,24);}
    REPEAT
    TAKE:=PORT[$379]XOR 128 ;{for equal to 255}
    IF TAKE=191 THEN BEGIN
    AX:=AX+1;{crease of x}
    SETMOUSEPOSITION(AX,AY);
    DELAY(50);
    END;
    IF TAKE=127 THEN BEGIN
    AX:=AX-1;{decrease of x}

    SETMOUSEPOSITION(AX,AY);
```

```
DELAY(50);
END;
IF TAKE=239 THEN BEGIN
AY:=AY-1;{dcrease of y}

SETMOUSEPOSITION(AX,AY);
DELAY(50);
END;
IF TAKE=223 THEN BEGIN
AY:=AY+1;{crease of y}
SETMOUSEPOSITION(AX,AY);
DELAY(50);
END;
IF (XX>16) AND (XX<63) AND (YY=21) AND((TAKE =247) OR (P=1)) THEN
 BEGIN
GOTOXY(16,21);WRITELN('          I WILL CRAY YAHU WHERE ARE YOU?
');
    SHOWMOUSE;
DURUM:=7;   DCOUNT:=0;
END;
   IF (XX>34) AND (XX<40) AND (YY=11) AND((TAKE =247) OR (P=1)) THEN
BEGIN
gotoxy(21,23);writeln('I am Zafer Kemal Akarsu and I LOVE A.K.');
 SHOWMOUSE;
cas1:=1;
 END;
 IF CAS1=1 THEN BEGIN
  DCOUNT:=DCOUNT+1;
```

```
IF DCOUNT>8000 THEN BEGIN
gotoxy(21,23);writeln('                          ');
CAS1:=0;DCOUNT:=0;
END;
END;
IF DURUM=0 THEN
BEGIN
TEXTCOLOR(6);
GOTOXY(16,21);WRITELN('IF YOU WANT TO FIND ME THEN FIND ON THE
DISPLAY');
DURUM:=2
END;
IF DURUM=7 THEN BEGIN
DCOUNT:=DCOUNT+1;
IF DCOUNT>8000 THEN DURUM:=0;


END;
P:=MOUSEPOSITION(XX,YY);
textcolor (7);
GOTOXY(20,19);WRITELN(xx,'         ',yy,'         ',take);
GOTOXY(20,19);WRITELN('                          ');
GOTOXY(20,19);WRITELN(xx,'         ',yy,'         ',take);
textcolor(7);
```

63

{ Parallel and Serial Mouse Controll and Use in Software }


```
SHOWMOUSE;
```

90

```
if take=247 then
   begin
   port[$3c8]:=2;
   port[$3c9]:=0;
   port[$3c9]:=0;
   port[$3c9]:=60;
   end;
if take=191 then
   begin
   port[$3c8]:=7;
   port[$3c9]:=0;
   port[$3c9]:=0;
   port[$3c9]:=60;
   end;

   if take=127 then
   begin
   port[$3c8]:=5;
   port[$3c9]:=0;
   port[$3c9]:=0;
   port[$3c9]:=60;
   end;
   if take=239 then
   begin
   port[$3c8]:=1;
   port[$3c9]:=0;
```

```
port[$3c9]:=0;
port[$3c9]:=60;
end;


if take=223 then
begin
port[$3c8]:=4;
port[$3c9]:=0;
port[$3c9]:=0;
port[$3c9]:=60;
end;
if take=255 then
begin
  port[$3c8]:=1;
port[$3c9]:=0;
port[$3c9]:=0;
port[$3c9]:=20;


port[$3c8]:=2;
port[$3c9]:=0;
port[$3c9]:=0;
port[$3c9]:=20;


port[$3c8]:=4;
port[$3c9]:=0;
port[$3c9]:=0;
port[$3c9]:=20;
```

```
port[$3c8]:=5;
port[$3c9]:=0;
port[$3c9]:=0;
port[$3c9]:=20;

port[$3c8]:=7;
port[$3c9]:=0;
port[$3c9]:=0;
port[$3c9]:=20;
end;
UNTIL KEYPRESSED;
READLN;
END.
```

Execute View of this program's is below:

```
            CONTROLL OF parallel PORT MOUSE
                         z
                         z
        mmmmmmmmmmmmmzmmmmmmmmmmmm
        mmmmmmmmm aa^aa mmmmmmmmm
        mmmmmmmmm aa^aa mmmmmmmmm
        mmmmmmmmm aa^aa mmmmmmmmm
        mmmmmmmmmmmmmmmmmmmmmmmmmm
        m <yyyym zafer mşşşş> m
        m <yyyym zafer mşşşş> m
        m <yyyym zafer mşşşş> m
        mmmmmmmmmmmmmmmmmmmmmmmmmm
        mmmmmmmmm eeVee mmmmmmmmm
        mmmmmmmmm eeVee mmmmmmmmm
        mmmmmmmmm eeVee mmmmmmmmm
        mmmmmmmmmmmmmmmmmmmmmmmmmm
```

POSITION X   POSITION Y   CASE OF CLİCK VALUE
   1   1   255

IF YOU WANT TO FIND ME THEN FIND ON THE   DISPLAY

Figure.4.3.: View of controll menu of parallell mouse

This is default of folled program (in borland pascal) x is 1,y is 1, case of click value is 255.When we click the rigth button case of click value will be 191.When we click the left button case of click value will be 127.When we click the up button case of click value will be 239.When we click the down button case of click value will be 223.When we click the midle button(ok button)case of click value will be 247.But may be click to more than one button and you can use these for other your purpose.

4.5. Game The Snak controll With Parallel Mouse & Keyboard in Borlandpascal Program Language.

We can use Parallel Mouse for game controll. I have made a program in Borland Pascal

Programming language. This program is a game program that is called Snak (with MAVİŞ) by me. And I shown this program and display of game is below:

```pascal
uses crt;{for using clearscreen and readkey, etc.}
 VAR
mouseinstalled:boolean;
P,XX,YY,mouseerror:word;
cas1,DURUM,DCOUNT, AX,AY,TAKE:INTEGER;
control,A,B,C,D,E,F,G,h,i,j,k,l,m,n:INTEGER;
x,y:array[1..14000] of integer;
left,right,down,up,art:integer;
kare,seviye,dsay,hal,ya,xb,ekle:integer;
ts:char;
carpma,bar,boy,life,score,hedefx,hedefy,hedefcontrol:integer;
DOSYA:TEXT;
GSCOR:INTEGER;

label basla,son,kac,hedefbas,hedefson;
procedure test;{for display of snak game}
var
 a,b,c,d:integer;
 begin
FOR a:=1 to 8 do begin
```

```
{m}
C:=8;
textbackground(1);
gotoxy(3+C,5+a);writeln('A');
gotoxy(1+C+a,5+a);writeln('A');
gotoxy(8+C+a,14-a);writeln('A');
gotoxy(15+C,5+a);writeln('A');
{a}
gotoxy(16+C+a,14-a+3);writeln('Y');
gotoxy(22+C+a,5+a+3);writeln('Y');
gotoxy(19+C+a,10+3);writeln('Y');
{v}
gotoxy(26+C+a,5+a);writeln('□');
gotoxy(33+C+a,14-a);writeln('□');
{□}
gotoxy(44+C,3+a);writeln('E');
gotoxy(45+C,3+a);writeln('E');
{Ÿ}
gotoxy(55+C+a,7);writeln('Z');
gotoxy(55+C+a,10);writeln('F');
gotoxy(55+C+a,13);writeln('R');
{wall}
textbackground(0);
textcolor(6); gotoxy(0+a,10);writeln(chr(178));
gotoxy(72+a,10);writeln(chr(178));
gotoxy(55+a,5);writeln(chr(178));
FOR h:=1 to 80 do begin
```

```
  gotoxy(h,23);writeln(chr(178));
end;
textcolor(7);
 end;
 for b:=1 to 2 do begin
 textbackground(1);
 textcolor(7);
 gotoxy(55+C,7+b);writeln('A');
 gotoxy(64+C,10+b);writeln('E');
 gotoxy(59+C,13+b);writeln('K');
 gotoxy(42+C+B,2);writeln('E');
 gotoxy(44+C+B,2);writeln('E');
 end;
 textcolor(7);
  textbackground(0);
  gotoxy(1,24);writeln('Score:',score);
  gotoxy(16,24);writeln('SOFTWARED BY ZAFER KEMAL AKARSU C.E.');
 end;
BEGIN
  CLRSCR;
  boy:=5;
  life:=5;
  test;
 basla:;{for loop i have used label basla and etc}
  {for reading old score from the tex data}
  assign(dosya,'score.dat');
  reset(dosya);
```

```
while not eof(dosya) do begin
readln(dosya,gscor);
gotoxy(55,24);writeln('old score : ',gscor);
end;
close(dosya);
REPEAT {for loop repeat and until}
if bar=0 then begin gotoxy(1,1);writeln('>');end;
{take is value of caming from parallel port mouse}
TAKE:=PORT[$379]XOR 128 ;
if hedefcontrol=0 then
begin
{for hold to hedef point}
{for randomly put the things for aim}
hedefbas:;
hedefx:=trunc(random(100));
hedefy:=trunc(random(100));
if ((hedefx>0) and (hedefx<45)) and ((hedefy>0) and (hedefy<6)) then begin
goto hedefson;
end;
{which point will put the aim}
if ((hedefx>0) and (hedefx<79)) and ((hedefy>16) and (hedefy<23)) then begin
goto hedefson;
end;
if ((hedefx>55) and (hedefx<80)) and ((hedefy>0) and (hedefy<5)) then begin
goto hedefson;
end;
if ((hedefx>45) and (hedefx<63)) and ((hedefy>12) and (hedefy<16)) then begin
```

```
goto hedefson;

end;

goto hedefbas;

hedefson:;

textcolor(12);  gotoxy(hedefx,hedefy);writeln(chr(1+trunc(random(5))));

textcolor(7);

hedefcontrol:=1;

end;
```

{for finding to aim point and for score crease}

```
if (1+b=hedefx) and (1+a=hedefy) then

begin

score:=score+10;

gotoxy(1,24);writeln('score:',score);

hedefcontrol:=0;

dsay:=0;

art:=art+3;

seviye:=1;

end;
```

{keyboard and parallel mouse conrol direction}

```
if take=247 then

    begin

    end;
```

{if which value is 1 then it is active button}

```
if (take=191) or (ts=('M')) then begin
```

```
right:=1;left:=0;down:=0;up:=0;bar:=1;
end;
if (take=127) or (ts=('K')) then begin
right:=0;left:=1;down:=0;up:=0;bar:=1;
end;
if (take=239)or (ts=('H')) then begin
right:=0;left:=0;down:=0;up:=1;bar:=1;
end;
if (take=223)or (ts=('P')) then begin
right:=0;left:=0;down:=1;up:=0;bar:=1;
end;
  if left=1 then begin gotoxy(1+b,1+a);writeln('<');end;
  if right=1 then begin gotoxy(1+b,1+a);writeln('>');end;
  if down=1 then begin gotoxy(1+b,1+a);writeln(chr(25));end;
  if up=1 then begin gotoxy(1+b,1+a);writeln(chr(24));end;
delay(100);

{      gotoxy(1,1);writeln('zafer',1+b,1+a);}
{if touch any letter in the game then game is over}
  if (((1+b)=51) or((1+b)=52) or((1+b)=53) or((1+b)=54))and ((a+1)=2) then
  begin
  carpma:=1;
    end;
  if (((1+b)=52) or((1+b)=53))and ((a+1)=4) then
    begin
  carpma:=1;
```

```
      end;
   if ((((1+b)=52) or((1+b)=53))and ((a+1)=5) then
      begin
      carpma:=1;
      end;
   if (((((1+b)=10) or((1+b)=11))or((1+b)=23)or((1+b)=24)or
((1+b)=35)or((1+b)=49)or((1+b)=52)or((1+b)=53)) and ((a+1)=6) then
      begin
      carpma:=1;
      end;
   if (((((1+b)=11) or((1+b)=23))or((1+b)=36)or((1+b)=48)or
((1+b)=52)or((1+b)=53)or((1+b)=64)or((1+b)=65)) and ((a+1)=7) then
      begin
      carpma:=1;
      end;
   if (((((1+b)=66) or((1+b)=67))or((1+b)=68)or((1+b)=69)or ((1+b)=70)or((1+b)=71))and
((a+1)=7) then
      begin
      carpma:=1;
      end;
   if (((((1+b)=11) or((1+b)=12))or((1+b)=22)or((1+b)=23)or
((1+b)=37)or((1+b)=47)or((1+b)=52)or((1+b)=53)) and ((a+1)=8) then
      begin
      carpma:=1;
      end;
   if ((((1+b)=63)) and ((a+1)=8) then
      begin
```

```
    carpma:=1;
  end;


if (((((1+b)=11) or((1+b)=13))or((1+b)=21)or((1+b)=23)or
((1+b)=31)or((1+b)=32)or((1+b)=38)or((1+b)=46)) and ((a+1)=9) then
    begin
    carpma:=1;
    end;
if ((((1+b)=52)or((1+b)=53)or((1+b)=63) ) and ((a+1)=9) then
    begin      carpma:=1;
    end;
if (((((1+b)=11) or((1+b)=14))or((1+b)=20)or((1+b)=23)or
((1+b)=31)or((1+b)=32)or((1+b)=39)or((1+b)=45)) and ((a+1)=10) then
    begin
    carpma:=1;
    end;
if ((((1+b)=52)or((1+b)=53)or((1+b)=64) or((1+b)=65)or((1+b)=66)or((1+b)=67)  ) and
((a+1)=10) then
    begin      carpma:=1;
    end;
if ((((1+b)=68)or((1+b)=69)or((1+b)=70) or((1+b)=71)) and ((a+1)=10) then
    begin      carpma:=1;
    end;
if (((((1+b)=11) or((1+b)=15))or((1+b)=19)or((1+b)=23)or
((1+b)=30)or((1+b)=33)or((1+b)=40)or((1+b)=44)) and ((a+1)=11) then
    begin
    carpma:=1;
```

```
      end;
if (((((1+b)=52) or((1+b)=53))or((1+b)=72)) and ((a+1)=11) then
      begin
      carpma:=1;
      end;


if (((((1+b)=11) or((1+b)=16))or((1+b)=18)or((1+b)=23)or
((1+b)=29)or((1+b)=34)or((1+b)=41)or((1+b)=43)) and ((a+1)=12) then
      begin
      carpma:=1;
      end;
if ((((1+b)=72)) and ((a+1)=12) then
      begin
      carpma:=1;
      end;


if (((((1+b)=11) or((1+b)=17))or((1+b)=23)or((1+b)=28)or
((1+b)=29)or((1+b)=30)or((1+b)=31)or((1+b)=32)) and ((a+1)=13) then
      begin
      carpma:=1;
      end;
if (((((1+b)=33) or((1+b)=34))or((1+b)=35)or((1+b)=64)or
```

```
((1+b)=65)or((1+b)=66)or((1+b)=67)or((1+b)=68)) and ((a+1)=13) then
      begin
```

```
   carpma:=1;
 end;
if (((((1+b)=69) or((1+b)=70))or((1+b)=71)or((1+b)=42) ) and ((a+1)=13) then
   begin
   carpma:=1;
   end;

if (((((1+b)=27) or((1+b)=36))or((1+b)=67)) and ((a+1)=14) then
   begin
   carpma:=1;
   end;

if (((((1+b)=26) or((1+b)=37))or((1+b)=67)) and ((a+1)=15) then
   begin
   carpma:=1;
   end;
if (((((1+b)=25) or((1+b)=38))) and ((a+1)=16) then
   begin
   carpma:=1;
   end;
if (((((1+b)=1) or((1+b)=2))or((1+b)=3)or((1+b)=4)or
((1+b)=5)or((1+b)=6)or((1+b)=7)or((1+b)=8)) and ((a+1)=10) then
   begin
   carpma:=1;
   end;
```

```
if (((((1+b)=73) or((1+b)=74))or((1+b)=75)or((1+b)=76)or
((1+b)=77)or((1+b)=78)or((1+b)=79)or((1+b)=80)) and ((a+1)=10) then
    begin
    carpma:=1;
    end;
if (((((1+b)=56) or((1+b)=57))or((1+b)=58)or((1+b)=59)or
((1+b)=60)or((1+b)=61)or((1+b)=62)or((1+b)=63)) and ((a+1)=5) then
    begin
    carpma:=1;
    end;
if ((1+b>0) and (1+b<80)) and ((1+a>22) and (1+a<24)) then carpma:=1;
if (1+b<1) or (1+b>80) or (1+a<1) then carpma:=1;
  if carpma=1 then begin
  carpma:=0;

  test;
  gotoxy(20,20);writeln('G  A  M  E     O  V  E  R');
  repeat
  until keypressed;
 {if score is greater than oldscore then change}
  if score >gscor then begin
   assign(dosya,'score.dat');
   rewrite(dosya);
   gscor:=score;
```

105

```
  writeln(dosya,gscor);
  close(dosya);
   end;
repeat
 until keypressed;
   clrscr;
   HALT;
 end;
  if left=1 then begin right:=0;down:=0;up:=0;b:=b-1;end;
  if right=1 then begin left:=0;down:=0;up:=0;b:=b+1;end;
  if down=1 then begin right:=0;left:=0;up:=0;a:=a+1;end;
  if up=1 then begin right:=0;left:=0;down:=0;a:=a-1;end;
  delay(50);
   {hedef bul ma noktas□}
   kare:=kare+1;
   x[kare]:=b;
   y[kare]:=a;
   if seviye=1 then begin dsay:=1;goto kac; end;
{for crease the queue}
if kare>art+5 then hal:=1;
if hal=1 then begin
ya:=ya+1;xb:=xb+1;
gotoxy( 1+x[xb] ,1+y[ya]);writeln(' ');
end;
 kac:;
if dsay=1 then begin
 ekle:=ekle+1;
if ekle>art then begin dsay:=0;seviye:=0;end;
```

```
dsay:=0;
end;
    UNTIL KEYPRESSED;
        ts:=readkey;
        if ts=chr(13) then goto son;
        goto basla;
        son:;
        READLN;
    END.
```

This program's output is below:


```
                                                                    □
                                                 EEEE
                                                 EE
                                                 EE
  AA        AA       Ş          Ş    EE          _____
  A         A          Ş          Ş  EE               ZZZZZZZZ
  AA        AA           Ş          Ş EE          A
   A A    A  A     YY     Ş          ŞEE          A
   A  A   A  A     YY       Ş      Ş  EE          FFFFFFFF _____
   A   A  A  A     Y Y        Ş    Ş  EE                          E
   A    A A  A      Y   Y      Ş Ş           □                    E
   A      A  A      YYYYYYYY      Ş          □    RRRRRRRR
                  Y           Y              □    K
                 Y             Y             □    K
                 Y             Y             □
                                             □
                                             □
                                             □
                                          >>>>>>□
```

```
score:30      SOFTWARED BY ZAFER KEMAL AKARSU C.E.   old score : 70
```

Figure.4.4.: Display of snak game

In this program "□" means aim point. And ">>>>>>" means snak. If snak arrived the aim point then score will be crease and qeueu will be crease too. And in this display of sank game tere are lot points that These points are letters and letters have a point X and Y. If snak touch one of them game will be finish and if score is greater than old score than score will be recorded by program automaticly.unless will not.

4.6. Connector Programs

I have programmed follewed programs in Basic and Pascal.Then we have more than one program therefore I created a program for connecting and it is called connector by me.And also can call the Main Menu for connectig with other shown programs. In the connector menu I have used keyboard and Parallel port Mouse. If we want to connect other program for example "Parallel Port Control" or other then we have to click to button on the keyboard "Enter button" and on Parallel port mouse "Midle button" and when click one of them in the menu of main it will be active.And here we can use direction button from the keyboard.

I shown "Connector Menu or Main Menu" on next page.

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
  ¡¡¡ABOUT MOUSE¡¡ NEW PER. ENTRY ¡¡ INF. APPEND ¡ INF. READ   ¡ INF. DELETE ¡¡¡_
  +----------------+
  ¦ Serial Mouse   ¡
  ¦ Parallel Mouse.¡      A
  ¦ Game P.Mouse...¡
  +----------------¡
  ¦ Menu of P.Mouse¡
  ¦ .........      ¡
  ¦----------------¡
  ¦                ¡
  ¦ .....          ¡
  ¦ Exit         _ ¡
  ¦              _ ¡
  +              + ¡
  +

  ¡¡¦ CHANGE print..   ¦ EXIT FROM PROGRM ¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦_
  + E X P L A I N   A B O U T   M E N U   +
_ ¦ About Mouse is active                  ¦+-------------+
_ ¦                                        ¦¦HELP   [ F1 ]¦ _
_ ¦---------------------------------------+¦+-------------+ _
_ +---------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
```

Figure.4.5.: Display of snak game

In here, When we writen "proje.bat" will work this follewed menu. This menu is writen in Basic by me. Here when we click "Serial Mouse" Will active serial mouse controll in Pascal "Mouse1.pas" it's execute is "Mouse1.exe". If we click "Parallel Mouse" then it will be active in Pascal "Mousep.pas" it's execute is "Mousep.exe". If we click "Game Parallel mouse" then will be active "Mousg2.pas" it's execute is "Mousg2.exe". If we click "Menu of P.mouse" then will be active "EKR.bas" in Basic and if we click "Exit" then program will be closed by automatickly.

109

CONCLUSION

In teorically I thought serial mouse work fastly and for drawing it is perfect and can use connectionless or connectionly by users and programmers. After I thought why not...Why do not we use the parallel port for mouse that so I have studied about parallel port and I designed Parallel port Mouse.In teorically I have seen this parallel mouse is faster than serial mouse.And this parallel mouse may also be connectionles or not and we can use more than 10.. functional button in this parallel port mouse..

That so I have studied about this parallel port mouse and I have seen who can use this in game and menual promrams.

In pratically, This parallel port mouse can use in the programs that is designed and applied with program by Zafer Akarsu.Druing the my studies I have lernt beter than before my port information.And in this mouse we can use for input 5 pins in parallel port these pins are called Status pins Therefore we can use from outside 2*2*2*2*2=32 buttons.And if we want to join clock signal one of status pins then these number of buttoms will be increase.And we use this mouse connectionly or not and can use as joyistick or connect to cables of this mouse. And in programs I have used this mouse in Basic and Borland Pascal who can use other program languages.If we use how is work ports it will be not problem for us.

BIBLIOGRAPHY

[1.] Pc Magazine PC NET years between 1998-2001 about mouse descriptions.(Firm)

[2.] User personal computer CPC-8000 (daewoo) about port pin configuration.(Firm)

[3.] Turbo Pascal about serial mouse writen by Ömer Akgöbek.

[4.] Basic about use parallel port mouse on the menu of display writen by Kemal Ata jun 2002.

[5.] Electrik circuits written by Dr. Jony Cansell may 2001..

[6.] Design and use about parallel mouse and test of serial mouse with programs with help Magazine Pc World 1996-1998.

[7.] Uses Ports in software written by Zayp Kurey in april 1998.