E-Ball - The Smallest Computer

Authors
Dr. Pradeep M. Jawandhiya¹, Priya A. Parhate²
¹Ph.D. in Engg. & Tech., ²ME Student
¹,²Department of Computer Science and Engineering,
Pankaj Laddhad Institute of Technology & Management Studies (PLITMS), Buldhana

ABSTRACT:
Apostol Tnokovski is the designer of the E-Ball computer system. E-Ball is a sphere shaped computer which is the smallest in design among all the desktops and laptops. E-ball has all the traditional features of a computer system such as keyboard, mouse, DVD, etc. but in a very innovative way. E-Ball is just 6 inch in diameter, which is a very small sphere shaped computer can easily carry everywhere than laptops; and only 120 X 120 mm motherboard. It has a laser keyboard feature which is activated by pressing a particular key on E-Ball; a wireless optical mouse; a large screen display and; a DVD recorder. E-Ball is designed to be placed on two stands, opens by simultaneously pressing and holding the two buttons located on each side. This paper introduces E-Ball with all its detailed features, its design and working, advantages and disadvantages. E-Ball is the very smallest computer in the world.

INTRODUCTION:
E-Ball is one of the ingenious emerging technologies designed by Apostol Tnokovski, a 31 year old Macedonian product designer. This sphere shaped PC is predominantly grounded on the laser rays technique and dwells all the necessary and vital features which a normal computer possesses. In other words, a complete computer is veiled inside it. Principally designed for Microsoft Windows Operating System [4]. The E-Ball concept pc is a sphere shaped computer which is the smallest design among all the laptops and Desktops. This computer has all the feature link a traditional computer elements like keyboard or, mouse, DVD, large screen display [1]. E Ball is designed that pc is be placed on two stands, opens by pressing and holding the two buttons located on each side of the E-Ball pc, this pc is the latest concept technology. This concept PC will measure 6
inch in diameter and it was designed for Microsoft Windows OS. E Ball concept pc don’t have any external display unit, it has a button when you press this button a projector will pop and it focus the computer screen on the wall which can be adjusted with navigation keys. If there is no wall then it has a paper sheet holder that divides into three pieces like an umbrella just after popping up, and it will show desktop on the paper sheet. Also, the E-Ball PC supports a paper holder and the paper sheet on the holder could act like a screen where you can watch movies or something. It contain HD-DVD recorder, 500GB HDD, 2GB of RAM, integrated graphic card and sound card, 2 x 50W speakers, wireless optical mouse and laser keyboard, LAN and WAN card, modem, Web cam and integrated LCD projector and accordingly [3].

The software interface of E-Ball is highly stylized with icons that can be remembered easily, and is user friendly. This compact pc is ideal for use when working in office, making video presentations, watching large screen movies, listening music and chatting on the net.

**FEATURES OF E-BALL:**

E-ball technology includes the following features: [4]

1. A holographic display: Holographic display is an authentic three-dimensional (3D) display technology that expounds all depth cues devoid of any special glasses. It offers an innate 3D experience for multifarious spectators.

2. Optical Mouse: Adopting the concept of light-emitting diode (LED) and an optical sensor instead of the outmoded mouse ball, optical mouse is a precocious computer pointing device whose movement detection is attainable by apperceiving the modifications in the reflected light, rather than by deciphering the motion of a rolling sphere.

3. 50-600 Gigabytes of Hard Disk Drive: It is a data storage device comprehending the capacity in the range of 300-650 GB used for retrieving digital information utilizing expeditiously rotating disks smeared with magnetic material.

4. 5 Gigabytes of RAM: This petite PC consists of 5 Gigabytes of RAM which is an abbreviation for random access memory. It is the dominant and most congruous type of memory endowed in computers which can be accessed randomly without touching any of the preceding bytes.

5. 50 Watt speakers: Prominently known as multimedia speakers, these speakers are external to a computer that sabotages the lower fidelity built-in speaker which often has a low-power internal amplifier.

6. LAN and WLAN card and a Web cam: LAN and WAN cards are hardware devices which can be consolidated into the main hardware of the computer and acquire connection with computer network. A video camera that bolsters its image in real time to a computer network is a webcam. A webcam is extensively connected by a USB cable or FireWire cable unlike an IP camera where a direct connection using Wi-Fi or Ethernet is obligatory.

7. LCD projector: A device that avails a liquid crystal display technology for projecting videos, whist and static images along with auxiliary data onto a screen is known as an LCD projector. Metal halide lamp or similar to it is used to spawn light, which outstrips polarized light through three LCD panels. These panels judiciously allow pixels of blue, red and green light to pass through another prism that amalgamates the colors and projects them onto a remote surface.

8. HD DVD Recorder: High Definition DVD recorder exemplarily refers to an independent unit that resembles and functions like a VCR. Rather than a video tape, it records onto a DVD disc. Any analog video source can be used by DVD recorders for the utility of recording.
9. Integrated graphic card and sound card: A sound card is an integrated circuit, also called an expansion card, which dispenses a computer with the competence to beget sounds that can be heard by the user either over speakers or headphones. A graphic card is a dole of hardware installed in a computer that is culpable for rendering the image on the display screen.

10. Power port: Electronic devices such as portable DVD players can be plugged in using power ports.

11. Paper sheet holder: The paper holder acts like a screen for forging splendid presentations or watching movies. In this petite PC, a paper sheet holder is incorporated which gets segregated into three pieces like an umbrella just after it pops up, and displays the desktop on the paper sheet in the absence of any wall.[4]

12. Modem port: Using standard telephone service, modem port is used for connecting PC to the Internet. The computer can call an Internet service provider (ISP) to deliver the desired information over voice lines with the help of it.

13. S-video port: Popularly known as S-Video and super video, separate video is an analog video transmission that hauls standard definition video customarily at 480i or 576i resolution.

14. Dual core processor: A dual core processor is a central processing unit consisting of two disassociated cores on the same die, possessing its own cache. There are two imperforate execution cores instead of one, each with an autarchic interface to the front side bus which makes it pertinent for multitasking environments [2].

15. Laser keyboard: It is utterly a concept keyboard that is discernible when the pc is working. The keyboard is not physical, it is interpreted by lasers. It recognizes your fingers with an aid of an IR sensor when you are typing at an appropriate place, while the mouse is a pop out wonder fabricating this as an existing morsel of technology.
WORKING OF E-BALL:
E-Ball is started by pressing a particular button shown in fig2.

![Fig 2. Start of E-Ball](image)

E-Ball is designed such that it can be fixed on two stands. E-Ball has two buttons on each side and the users can simply open this pc by pressing and holding them at a time shown in fig3.

![Fig 3. Opening stand and detaching the Optical Mouse](image)

Once you open the stand and turn the E-Ball on, you can connect the optical mouse from the body of the E-ball by simply pressing the connecting button of mouse shown in fig3. This technology has a button that allows its laser keyboard to get activated shown in fig4.

![Fig 4. Activating the laser keyboard](image)
E Ball pc don't have any external display unit, it has a button when this button is press a projector will pop and it focus the screen on the wall which can be adjusted using navigation keys. When we are working in place where no projector is available then we can make use of a paper sheet as a screen shown in fig4. The paper sheet holder is placed at the back panel. The holder can be opened by pressing it in the lower part of pc. The E-Ball PC supports a paper holder and the paper sheet on the holder could act like a screen where you can watch movies or perform the works.

![Working on paper sheet with projector](image)

**Fig 4.** Working on paper sheet with projector

E-Ball concept pc has a laser keyboard that is visible when the pc is in working. The keyboard is not physically present it is interpreted by lasers that appear after press the buttons on it. This recognizes your fingers with the help of an IR sensor at the time when you are typing at a particular place.

The software interface of E-Ball concept pc is most stylized with icons that can be remembered easily which support all type of windows operating system. E-Ball pc work very easy while you are making video presentations, listening music, watching movies, and chatting on the net. There are five simple steps to ON pc that are you can use-press and hold the power button for 5 second, adjust the LCD Projector and detach the optical mouse. Activate the virtual mouse and do whatever you want.

**Advantages of E-Ball:**

1. It is portable [2].
2. E-Ball has large memory [2].
3. Useful for making video presentations [1].
4. These have greater speed [1].
5. Supports user-defined keyboard layouts [4]
6. It is efficient.
7. It is very easy to use
8. It is more secure than other computer [1].
9. Easy to use for making magnificent presentations [4]
10. This technology is quite handy [4]

Disadvantages of E-Ball:
1. Normal OS can’t work in these computers [4].
2. Cost of E-Ball is very high [1].
3. It is difficult to understand if any problems occur in hardware components [4].

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