

Design of E-Mouse

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Abstract: As the method of existing wired mouse not adequately efficient in terms of mobility and independent of wire. So the users switch over to the concept of wireless mouse which has many unique features. In this paper, we are presenting the methodology of e-mouse. An e-mouse is a computer mouse that needs no wires to send signals from the mouse to a compute. This paper presents the design and the development of an E-Mouse. The concepts of the existing traditional mouse incorporated the features of a touch pad, which is ergonomically designed was considered in the development of the project. The e-mouse offers obvious advantages over its tethered brethren, such as being able to point and click on a computer screen from across the room and run on multiple surfaces.[1]

Keywords: mouse, e-mouse, computer, screen, surfaces.

Introduction: Computers are being used in almost anything that is possible with regards to the capabilities of computer. Computer is one of the most advanced technologies in this generation. One of the most important components of a Computer is a computer mouse as an input device. The mouse has played a critical role as a primary input device and is the most commonly used non keyboard input device with desktop computers. Nowadays, computer mouse have undergone a variety of changes and enhancements. The demand of the user on a better way of using mouse as input device continues to arise. We all know that mouse is a critical part of the computer system. As time goes by, the design of computer mouse evolves and its approaches to its position or pointing on a display. The proponent led to the study of enhancing this device to introduce a new and better way of interacting with the computer. Hence, the proponents proposed this study entitled "Design of e-Mouse." A mouse is a pointing device that functions by detecting two-dimensional motion relative to its supporting surface. Physically, a mouse consists of an object held under one of the user's hands, with one or more buttons. The mouse's motion typically translates into the motion of a pointer on a display, which allows for fine control [2]of a graphical user interface. E-mouse [3]technology predominantly uses radio frequencies (RF) the user to experience the newest way of communicating with the computer that can get rid of muscle pain and discomforts in forearm and wrist. Hence, the proponents proposed this study entitled "Design and Materials of Ergo-Mouse or E-Mouse"[4] (wireless connectivity) to send signals from the mouse to the computer. Like other radio technologies, this requires a transmitter and a receiver. The mouse transmits radio signals to a receiver, which is itself connected to the computer hardware, normally via a wire. This kind of wireless mouse is very reliable, and capable of transmitting the mouse's movements to the receiver from across a room. The project will change the way of interacting with the computer by the use of this project. This project not only improves the way of its design, it also allows the user to experience the newest way of communicating with the computer that can get rid of muscle

pain and discomforts in forearm and wrist. Hence, the proponents proposed this study entitled “Design and Materials of Ergo-Mouse or E-Mouse”.

Material and techniques: The requirements such as the hardware and software components including how it works were analyzed in order to utilize its function. Furthermore, the scope of the design project is defined to visualize the set objectives. The output set in this process in terms of drawings and plans are important in the construction of the project. It also evaluates the operation and technical aspects of the design project.

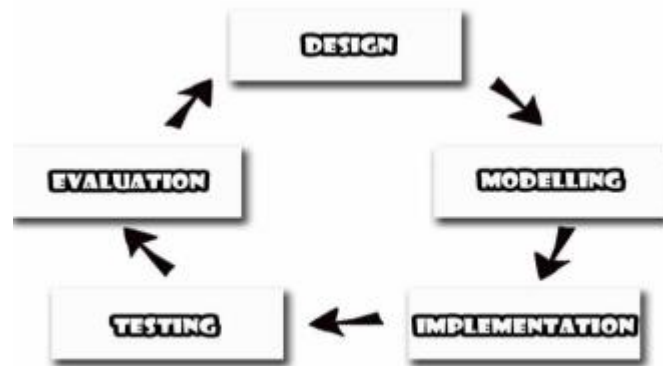


Figure 1. Engineering Design Cycle

Design and Modeling: Design is a primary step in the development of the design project. During the first phase of the design process, the external factors influencing the proposed e-mouse were analyzed such as the financial resources, availability of data and sub assemblies, components and material. result of the conceptual design stage is a concept with best meets all requirements. The requirements such as the hardware and software components including how it works were analyzed in order to utilize its function. Furthermore, the scope of the design project is defined to visualize the set objectives. The output set in this process in terms of drawings and plans are important in the construction of the project. It also evaluates the operation and technical aspects of the design project. The proponent also considered the common gestures for touch screen [5] shown in Figure.



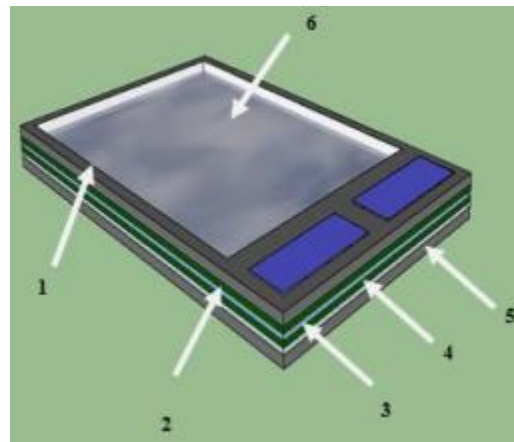
Fig.4: System Components of E-Mouse

Components:

- The proponent came up with the following basic components of a touch screen.
- Touch Screen Sensor
- Controller
- Software Driver
- Surface Capacitive Screens

Materials for the E-Mouse:

1. Polyester Top Sheet
2. Etched (Indium Tin Oxide) ITO Coating
3. Spacer Dots
4. Etched (Indium Tin Oxide) ITO Coating
5. Glass Substrate
6. Glass (Discrete Touch Points Defined by Etching)

**Conclusion:**

The project has several potential advantages to frequent computer users. The e-mouse provides more comfort and less hand movement because of its low profile ergonomic design. It will help the users to prevent computer-mouse related injuries such as Carpal Tunnel Syndrome. It results with a more natural and easier tap and scroll. It is suggested to conduct further studies on the compatibility of the e-mouse to different operating systems. The e-Mouse is only compatible to computer systems running Microsoft Windows and to different distributions of Linux. Use of lighter materials can also be improved to minimize the weight of the mouse. Likewise, hand motion sensor can also be studied and integrate in the device to allow hand gestures as input.

References:

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