The Effectivity of Microsoft Word Layout for quadriplegic Through a technology of webcam used as a mouse

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A quadriplegic is a person who is not able to do activities like normal people due to disablement in their body. During this vast digital age, a technological invention that can help people with quadriplegic is the web camera that is used as a mouse— called a camera mouse— for the computer. Which can then be implemented with Microsoft word software so it can help to access a computer or laptop. Before being used with the camera mouse, Microsoft word itself requires a special mode, namely physical distancing mode. This mode will later be a plugin that can be activated in Microsoft word. The existing Microsoft word layout has not been able to accommodate the use of the camera mouse without errors. The current Microsoft word software is not able to stand alone incorporating a camera mouse because the layout does not accommodate the works of the camera mouse. Therefore, a plugin is needed to support the software, named an accessibility mode.

Keywords: Quadriplegic, software, technology, webcam, mouse, layout

Introduction

The term Quadriplegic is designated for a person who has physical abnormalities in their limbs, such as feet, hands, or body shape. Either normal kids or quadriplegic has the same opportunity to do self-actualization, however, many people underestimated people with a quadriplegic. A quadriplegic is divided into two groups: (1) Pure quadriplegic who does not have mental disorders, and (2) Quadriplegic with mental disorders. People with quadriplegic requires special treatment, so-called people with special needs.

In the midst of an increasingly advanced technological era, many new discoveries can be useful for those with special needs who are not able to move as normal people. In this research, we are trying to boost people with quadriplegic self-esteem by positioning them to work independently. Through the advancement of technology, discoveries have been made and one of them is a camera mouse. A device that can help people with quadriplegic to access technology, especially computer and Microsoft offices software. This discovery is an effort for accessibility where the physically handicapped are a minority with disabilities.

The Technology of web camera as a mouse captures the faces of the users to move the cursor. The presence of this application is significant in helping people with a quadriplegic, however, this device does not compatible with specific software, such as Microsoft office. A test that had been conducted was only for games apps, while layout in the Microsoft office has not accommodated the use of a camera mouse.

The purpose of this research is to explain a research result of the use of Camera Mouse that implemented in Microsoft Word and to analyze a suitable layout for camera mouse in Microsoft word. Therefore, this article entitled "The Effectivity of Microsoft Word Layout for quadriplegic Through a technology of webcam used as a mouse".

The research problem in this research is how a person with quadriplegic can access technology through a personal computer or laptop that is facilitated with a web camera that is used as a mouse. This camera mouse can develop the quality of life of people with quadriplegic so that they can act like normal people or work independently. Also, the solution given camera mouse in Microsoft word can create a job field for people with a quadriplegic. In summary, the purpose of this research are:
To provide easiness for people with a quadriplegic in using a personal computer
To prove knowledge to the reader about a new invention in technology

Research methodology

Qualitative research methodology is used in this stud.
1. Qualitative Research methodology is used to see how far the effectivity from the application to answer the problem related with people with quadriplegic by collecting necessary data
2. Literature review is used in this research to gather information from previous research in books, journals, and any references.

In the qualitative research methodology, purposive and snowball sampling are two methods that are frequently used. Purposive sampling is a technique to make samples according to certain considerations. Snowball sampling is a technique to take a sample that is started from a small amount of sample and continued bigger. In this study, the researcher chose nonprobability sampling, specifically purposive sampling. The researcher selected the sample according to the specified sample requirements, which are based on theories and studies that are in accordance with the objective of the research. The data collection method is the most important step in this study because the purpose of the study is to obtain valid data. The data collection method can be conducted by observations, interviews, documentation, and a combination of the three. In this study, researchers chose to use observation and interviews.

The research instrument in qualitative research is the researcher him/herself. Researchers as an instrument must be "validated" how far qualitative researchers are ready to conduct research which then goes down to the field. Instruments in qualitative research can be in the form of tests, interview guidelines, observation guidelines, and questionnaires. Qualitative researchers are human instruments, their function is to determine the focus of research, select informants as data sources, collect data, assess data quality, analyze data, interpret data, and draw conclusions from their findings.

Discussion

Parameters used in this research is to quantify the effectiveness of camera mouse:
1. How often do error clicks (wrong clicks) of icons occur when using the camera mouse?
2. When the head is moved, is it true that Camera Mouse runs smoothly like using a normal mouse?
3. How long does it take to click with the Camera Mouse?

The researcher conducted hypothesis testing by tying his/her hands like a quadriplegic or physically disabled person who cannot move his/her hands and can only move the head to move the mouse. According to the researcher, it was not easy to act like a quadriplegic,

but that way the researcher can feel how difficult it is experienced by a quadriplegic. By testing the hypothesis him/herself, the results obtained are honest and true. When the camera mouse is used with Microsoft word whose layout has been changed and adjusted—where the icon has been enlarged—almost no errors or clicks occur when placing the cursor on one of the icons for two seconds, the icon will work. It makes very few errors occur. Plus the size of the icon that has been enlarged makes it easier and more effective. When the head is moving, the camera mouse cursor does not always run smoothly, but it can still be handled and can still be stable. The time it takes to click with the camera mouse is about 5-7 seconds. Through the answered parameters, it can be concluded that using the camera mouse can be classified as effective.

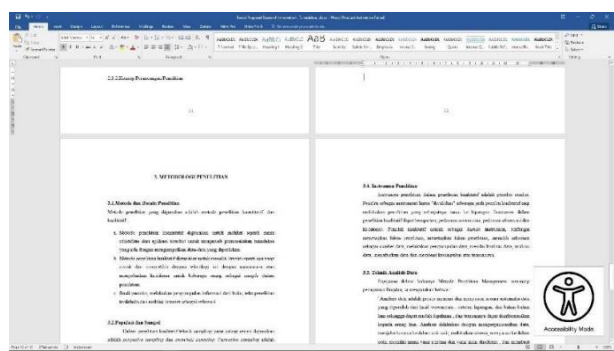The following is the result of the research:

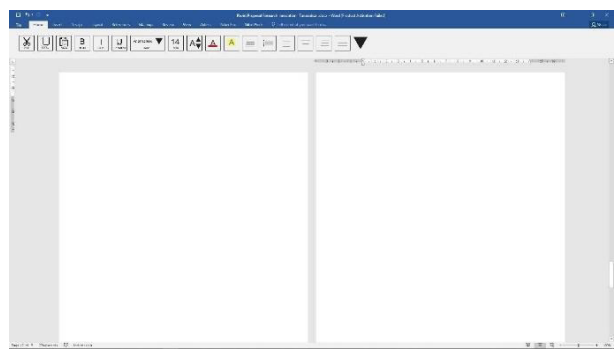Figure 1.1 Microsoft Word

Figure 1.2 Microsoft Word with Accesibility Mode

Figure 1.1. is Microsoft word before the layout was changed according to the use of camera mouse

Figure 1.2. is Microsoft word after adjusting its use with the camera mouse. The adjustments are made so that the camera mouse can be used effectively and reduce click errors or wrong clicks. With this adjustment, it is easier for the physically challenged to access this.

The hypothesis of this research deserves to be defended because it has been tested and also follows the rules or rules that are owned by Microsoft itself. It is just that

Microsoft has not provided an accessibility mode for every software.

Figure 1.3. standard icon size

Microsoft itself already has a standardized icon for the software it creates. Microsoft has not done any enlargement of its software, one of which is Microsoft word. With the help of the camera mouse, this accessibility mode is easier and more effective to run for people with disabilities themselves. With their physical limitations, they can still access computers and do things that normal people do. The re-design of Microsoft word uses the icon magnification of 40px x 40px or with a 125% magnification scale.

Conclusion

The conclusion that can be drawn from this study is that the camera mouse is effective to use as a web camera for the mouse, with a note that the layout used is also adjusted to the use of the camera mouse. The layout is adjusted by changing the order to only 1 line with an icon size of 40px x 40px. With this arrangement changed and adapted to the camera mouse, it is easier to use and access, especially for the physically disabled. This research has been tested for the quadriplegic and can be implemented. Within this breakthrough, it can be said that it is possible to provide jobs for the physically disabled in the future.

The result of this research is that accessibility is easier to use for people with disabilities and this research is useful and can be implemented in real life and designated for people with physical disabilities. With this invention and considered effective, it can be used by people with quadriplegic to operate Microsoft word.

Acknowledgement

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