

## A RELIABLE MONITORING SYSTEM TO REDUCE DIGITAL EYE STRAIN USING IMAGE PROCESSING TECHNIQUES

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In the contemporary era, usage of digital devices has increased substantially across all age groups due to social and professional needs. In the present, many companies have computerized and employees have to work using computers. According to the American Optometric Association, they recommend a 20-second break in every 20 minutes of observation of screen, while looking up 20 feet away, otherwise, the observer may be suffering from Digital Eye Strain (DES). This study aims to reduce the DES by reminding the users to have a rest for the eyes. This system was developed based on counting the time that how long we have engaged with the display by using eye detecting sensor with image processing techniques and advice the user to have a rest via a notification, when it reached the threshold value. Also, the proposed system counts the exact total time that how long a user has looked into display within the day and, it notifies the user if the total time within the day is excessive. In this study, 30 students, who had not any major vision problems were selected randomly as a sample and a questionnaire used to collect the data from the samples before and after introducing the proposed system. Paired t-test showed statically that the proposed system has made a huge difference and also it further proved that the proposed system increased the screen engage time by 1 hour and 50 minutes without eye strain and any other discomfort. Thus, the proposed method in this study is capable to reduce the impacts of DES and other physical problems while using the computer for prolonged time.

**Keywords:** *Computer Vision Syndrome, Digital Eye Strain, CVS Reduction, Eye Rest, Computer Screen*