



Science

## **OBSESSION AND ADVERSE EFFECTS OVER TECHNOLOGY**

**Mary Ivy Deepa I.S.<sup>\*1</sup>, Mithra<sup>2</sup>, Dr.Savithri<sup>3</sup>**

<sup>\*1,3</sup> PG Department of Computer Science and Technology, Womens Christian College, Chennai, India

<sup>2</sup> Student, PG Department of Computer Science and Technology, Womens Christian College, India

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### **Abstract**

An increase in the usage of electronic devices in today's world leads to a negative impacts on humans. Due to the over-usage of the devices leads to an uncontrollable handling behavior towards them called obsession. This paper deals with the statistical study about the obsession among the group of students and applying image processing techniques for recognition or detection of different types diseases/ symptoms caused by the obsession and explaining the consequences meeting with the obsession of the electronic devices among students normal life.

**Keywords:** Obsession; Computer Vision Syndrome; Circular Hough Transform; Pupil; Segmentation.

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### **1. Introduction**

Obsession, depression, aggression, and lethal madness over technology lead to the danger side of a person's life. These behavior activities can't be controlled when spend much time. As the technology grows, people are getting fascinated with this improvising history of technology. A number of users grow based upon the productivity of the digital devices. As the rate of usage increases, the same rate of diseases developed equals. The digital devices can develop the adverse effects for users like diseases, obsession and more. Like smartphones, social websites, attractive apps, PSP, laptops, portable devices and many advanced gadgets are handled in wrong way. This topic deals with both social and health issues. Tools are mostly designed to achieve our goals, but an obsession with them can turn into a stumbling block.

As per the research, a survey is undertaken of computer science students of almost 100 students. The charts are enclosed with the figures with student records that is collected for the research.

The data collected from the students are of 17-22. Because the – technology mostly attracts students. This can be either positive or negative impact.

The phones came as an important invention for the people. This satisfies the needs and improvises its functionality. Going through the history everybody uses phones. In this 21st century, smartphones have been the main gadget that could not be ridden among humans. The attraction of this device gets started right from the advertising. People get attracted with an immediate approach. And the obsession with the cell-phones gets started as we get use to it. Due to increase in economic growth, many mobile manufacturing companies are started- . China products are most popular among low-class people due to the price and designs and features. And the manufacturing details can also be defective to the humans.

As to the survey, the 99% of students uses mobile phones. Most popular among them is Android OS. The brand Samsung and Lenovo are the most buyable product of the students. They share the same percentage and then Motorola and Sony. Most of the students have the cell phones at the age of 16-18. The hours of usage of mobile phones by the students is of  $\leq 4$ . And their purpose of usage of mobile phones is 65% chatting via SMS/ Social media networking apps, 15% talking and 11% gaming. Due to over time usage while talking on mobile phones many are affected by ear problems. Here the 87% students are free from getting diagnosed with ear problems. There are many devices are developed for the portables usage, mostly 62 students use earpiece/headset as the – to talk. Due to the EMR many gets affected and develops serious problems and immune problems. So the habit of keeping the mobile phones under the pillow and in the pocket affects brain and heart mostly. Here 38% of students place their mobile phones under pillow. Due to the radiation, we should be careful in handling the phones, so the right way to use it is left hand. And to the survey, 24% of students handle the mobile phones in left hand while talking. And unknown hazards of the usage of cell phones due to obsession, results in 13% of the students getting affected. The reasons for the health problems are ear pain, over heat, eye irritation, and headache. And 25 of the students are having monophobia and 15 mobile users are selfie-obsessed.

Due to the over focusing of eyes while being digital addict many of them lose their eyesight and other serious problems. Among the students 45% of students is wearing specs and the reason behind it 11%-watching TV and 47%- Watching computer and 42% of students gets diagnosed with other problems. They are far sight problem, headache, -migraine, loss of eye power, insomniac, hereditary problems.

Nowadays online shopping is being a mass among shoppers. Among students, 44% prefer online shopping due to easy, time management, quality assurance, cheap, varieties, easy pay, offers, laziness and less transportation. The offline shoppers among students, 51%, this is due to comfort, quality assurance, varieties, immediate approach, family outgoing, fair bargain and time management. And the students of 5% prefer both online and offline shopping.

Game addiction spreads more impact among the players. Around the world, online video game addiction is the most addicted thing among gamers. Among the students, 65% prefer to play mobile phone game applications. And 15% prefer to play online games and 12% prefer PC

games. The most played game applications among the students are temple run-17, candy crush-13, subway surfer-8 and other games.

The social media runs around with million users. Their over usage of social media leads them to be obsessed. More cyber-attacks occur due to the carelessness and other issues. Whatsapp has 45 members-the most, facebook-30, hike-17, instagram-16 and etc.,

The android phones help us to download as many applications with the users account. Among the students, the most mobile applications they have are 55% of social media networking apps, 21% of game apps, 18% of entertainment apps and 6% of news apps. The students reported that they are mostly addicted to mobile phones of 73 student users and 11 obsessed to the laptop.

To be around social media, online games, and shopping and more you need to have internet connection. It's the ultimate to all for on-liners. As per the survey, 96% of students have internet connection. The purpose of internet usage as for the students reported that 30% of browsing, 29% for study purpose and 21% for social media access. The student age range of accessing the internet as a beginner is of 15-18. The statistics for most visiting websites by the students are 20% of YouTube, 12% of Wikipedia. And the main 52% is for browsing using Google as the browser engine.

Before computer, TV is the entertainer as a visualize object to the people than radio. The students are 94% of TV users. The students as TV users have the brand of 24-Samsung, 19-LG, 16-Sony and then the other brand products. The students watch TV to the maximum of 1-3 hrs. And the most watching channels among them are 41% of music, 36% of movies/comedies, 9% of news and the 7% for both sports and cartoons. Ear problems may occur due to the volume range of TV due to Hooper/home theater and other sound devices. This may cause ear problems due to the large range of decibel. The sound ranges of TV by the students are of statistics 74%Medium, 15% Low and 11%high. This result shows that the students have minimum troubles. Having food while watching TV leads to drastic change to the body like obesity and more. Among the students, 71% of them eats while watching TV.

The laptop helps in every way than the computer system, the students of 85% are laptop users. The brand of the laptop the students uses the most are Lenovo-19, hp-13, acer-9 and other. The student age range who works in laptop who considered as a beginner is of 16-18. The purpose of laptop usage as for the students reported that 48% for educational purpose, 21% for browsing and 15% for entertainment and others. The hours of usage spend by the students is of range minimum 1-2hrs and maximum for 8 hrs. The position of using laptop by students: 61% of laptop on table, 35% of laptop on lap and 4% of laptop on both. Only 3% of the students have health problems while using laptop. And the problems are back pain, over heat, dry eyes and more. [1] **Ajay Pathania** This paper presents an exposure of electromagnetic radiations caused to the human beings. It gives detailed information about the exposure as well as other damages caused to the brain, respiratory systems and more and also preventive measures. [2] **Muhammad Sarwar et al.** The aim of this study is to investigate how smart phones are impacting the society and also how Smartphone's are going to transform the culture diverse aspects of modern society. The intention of this study is to understand all the positive and negative aspects of Smartphone on the society. The conclusion of the study is explaining the consequences and benefits of the

smart phones. [3] **Bernard J. Jansen1 et al.** The intention of this study is to investigate how the adults and teenagers are getting affected by the social networking services. A survey is taken and it is implemented under the algorithm that is proposed. [4] In this research paper measuring human pupil using an image processing tool is done, which in future, it will be helpful in biometric areas.

## 2. Materials and Methods

The proposed algorithms and methods used in this research are:

### 2.1. Hough Circular Transform Algorithm

The circle Hough Transform is used for detecting circular sized pupil which enlarges caused due to the screen brightness.

### 2.2. Edge Detection

The edge detection is implemented for finding the boundary area of the disfigured fingers due to the over usage of the mobile phones.

### 2.3. Colour Detection

Colour detection is implemented to detect the red colour component in the eyes for the red eyes as a symptom of computer vision syndrome.

### 2.4. Median Filters

The median filter is used to remove noise, and thresholding a part of the pupil.

### 2.5. Colour Approximation

In Color approximation the uniform quantization, minimum variance quantization and inverse color mapping for differentiating their colours by balancing the color value.

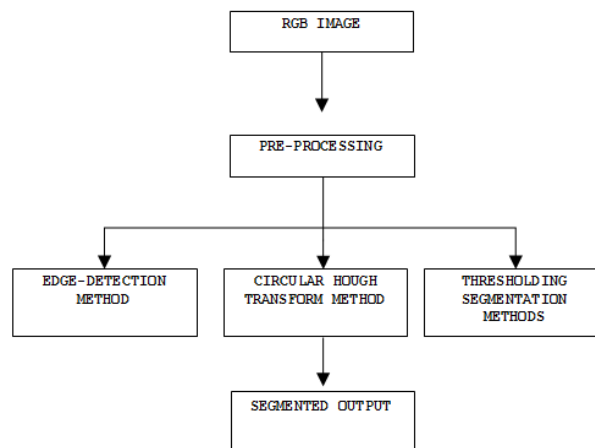


Figure 1: Flowchart of Proposed System

### 3. Results and Discussion

The code is applied based on filters to reduce the noise of the images, segmenting the pupil, detecting the circular objects and more, and the results is listed below as a tabular column for clear understanding.



DISEASE/ SYMPTOMS	ACTUAL IMAGE	OUTPUT	DESCRIPTION
RED EYES- WOMAN			<i>Using color detection techniques, it helps to identify the red components in the eye – Red eye</i>
RED EYES- MAN			

Figure 2: Recognition of red eyes



DISEASE/ SYMPTOMS	ACTUAL IMAGE	OUTPUT	DESCRIPTION
DARK CIRCLES			<i>Uniform quantization</i>
			<i>Minimum variance quantization</i>
			<i>Inverse color mapping</i>

Figure 3: Recognition of dark circles around eyes










TYPES	ACTUAL IMAGE	OUTPUT	THRESHOLDED IMAGE	DESCRIPTION
NORMAL PUPIL				<i>Using 2-median Threshold filtering to segment a pupil by changing the level</i>
PUPIL IN DIM LIGHT				
PUPIL IN BRIGHT LIGHT				

Figure 4: Comparative study of pupil when in light





TYPES	ACTUAL IMAGE	OUTPUT	DESCRIPTION
<b>NORMAL PUPIL</b>			<i>Using 2-median Threshold filtering to segment a pupil by changing the level</i>
<b>DILATED PUPIL</b>			

Figure 5: Comparative study of pupil when in dark







DISEASE/ SYMPTOMS	ACTUAL IMAGE	SOBEL FILTER	CANNY FILTER	DESCRIPTION
<b>DISFIGURED FINGER</b>				<i>Using Edge Detection method to find the boundary within the image</i>
				

Figure 6: Detection of disfigured finger





DISEASE/ SYMPTOMS	ACTUAL IMAGE	OUTPUT	DESCRIPTION
<b>ERYTHEMA AB IGNE- STAGE I</b>			<i>Applying uniform quantization filter to know the difference between them</i>
<b>ERYTHEMA AB IGNE- STAGE II</b>			

Figure 7: Comparative study of erythema ab igne





TYPES	ACTUAL IMAGE	OUTPUT	DESCRIPTION
<b>NORMAL LIPS</b>			<i>Applying uniform quantization to know the difference between the lips</i>
<b>DARK LIPS</b>			

Figure 8: Comparative study of dark lips



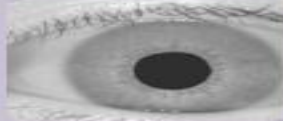
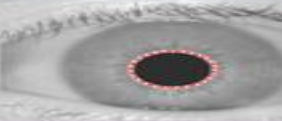


TYPES	ACTUAL IMAGE	OUTPUT	DESCRIPTION
<b>MEN PUPIL</b>			<i>Using Circular Hough Transform method to detect the pupil in the eye with the minimum and maximum values of 10-40</i>
<b>NORMAL PUPIL IN GRAYSCALE</b>			
<b>WOMEN PUPIL</b>			

Figure 9: Recognition of pupil




TYPES	ACTUAL IMAGE	OUTPUT	THRESHOLDED IMAGE	DESCRIPTION
<b>NORMAL PUPIL</b>				<i>Using 2-median Threshold filtering to segment a pupil by changing the level</i>
<b>PUPIL IN DARK</b>				

Figure 10: Comparative study of pupil when in dark

#### 4. Conclusions & Recommendations

In this research study, the extraction of the segmented output is done using various filters using RGB images. The recognition of pupils using threshold segmentation and the other filters with

varying intensity and enhancement helps to know the differences between them. The proposed algorithms help in analysing the symptoms and diseases caused by the obsession over technology. The survey done by over 100 students helps in getting to know about their obsessions. Their reported data results in 50:50. Through the statics information of every division helps the students to understand the unknown hazards due to obsessions through this study. The medical image computing helps this study to work on further researches.

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\*Corresponding author.

*E-mail address:* maryivydeepa@gmail.com