

# Gujarat Technological University



Sarvajani College of Engineering  
and Technology



**Department of Computer Engineering**  
**Year : 4<sup>TH</sup> Semester : VIII**

**Subject : Project-II (2180706)**

**Project Title : Internet of Brain**

**Academic year**  
**2020-2021**

# About Team

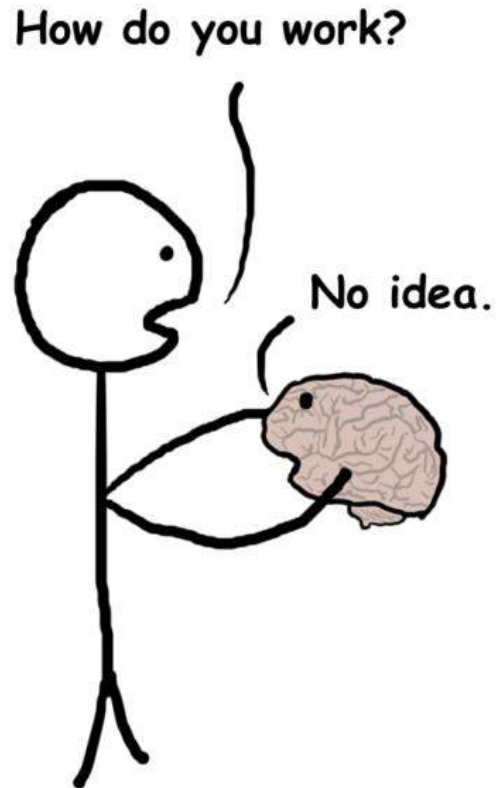
Team Leader Name : Kartik Gondaliya (170420107015)

Team Members Name : Sahil Shingala (170420107051)  
Bhumi Chavda (180423107001)  
Dhwani Desai (180423107002)  
Dhrumi Kansara (180423107005)

Guide Name : Prof. (Dr) Keyur Rana

# Internet Of Brain

# Brain Complexity



- 100 billion neurons.
- Every neuron is connected with 1000-10000 other neurons.
- Connections change over time.
- It's like fingerprint.

# Available solutions

## 1. Games



## 2. Wheel chairs



## 3. Typing



# Way Forward

	Emotive	Neurosky
Channel	14	01
Meditation	✓	✓
Attention	✓	✓
Raw-data ML(16 bit)	5★	1★
ASIC_EEG power (24 bit ) ML	4★	1★
Eye blink	✓	✓
9X motion censer	✓	✗



# OUR MODULE

## eVidhya

# Major Problem in E-learning

1. Concentration
2. Eye Strain
3. Screenshots





# Concentration is the key to success



# Articles

[Home](#) / [Chandigarh](#) / [Online classes leading to stress, eye problems in children, say parents](#)

## Online classes leading to stress, eye problems in children, say parents

Health problems are cropping up as screen time increases for students due to schools being shut because of the Covid-19 pandemic

**CHANDIGARH** Updated: Jul 20, 2020 21:18 IST

## Eyestrain from digital classes a major health concern for students

*Doctors reporting many cases since online classes started in the state, recommend extra care*



THE HINDU



MENU



HOME

NEWS

CORONAVIRUS

OPINION

BUSINESS

SPORT

CROSSWORD+

ENTERTAINMENT

Free Games

STATES

ANDHRA PRADESH

KARNATAKA

KERALA

TAMIL NADU

TELANGANA

OTHER

NEWS > STATES > ANDHRA PRADESH

ANDHRA PRADESH

## Online classes: students complain of eye and ear problems



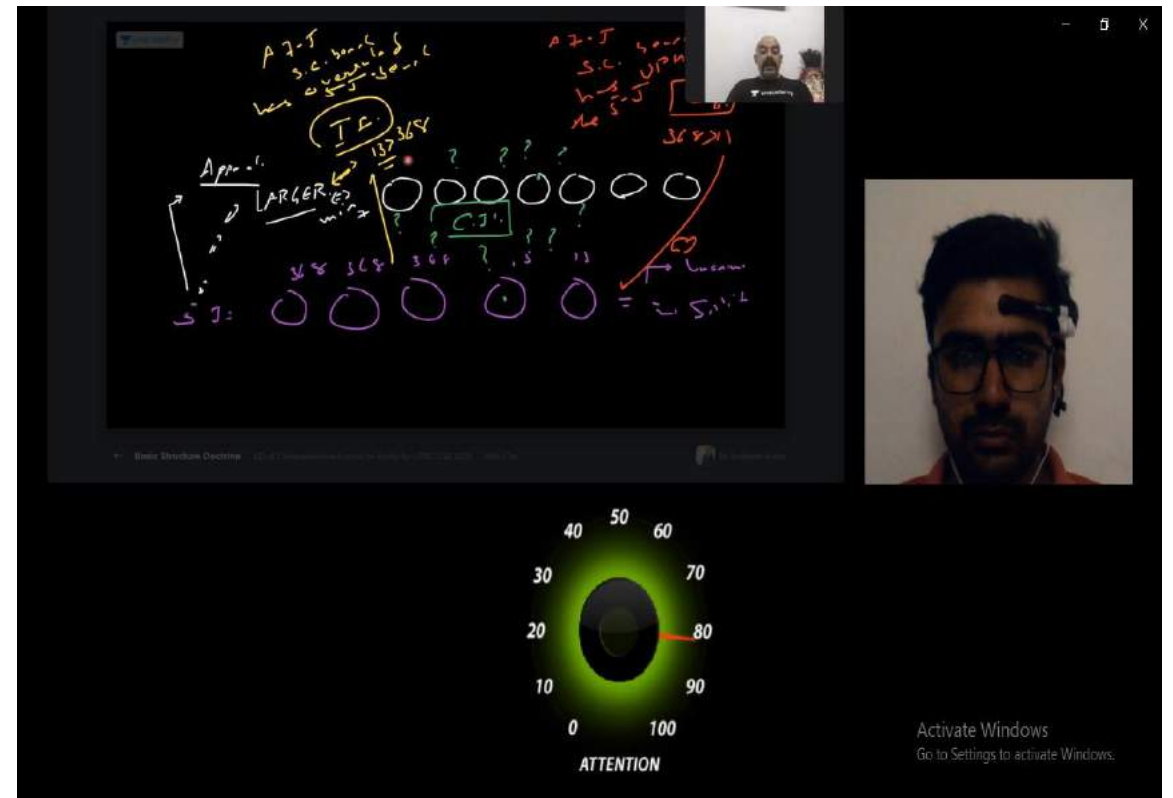
B. Madhu Gopal

B. MADHU GOPAL VISAKHAPATNAM, JUNE 18, 2020 22:32 IST

UPDATED: JUNE 19, 2020 08:29 IST

# Features

- Taking Attention value during video.
- Based on attention Resume/Pause.
- Fastest Screen Shots using Eye-wink.



# Features

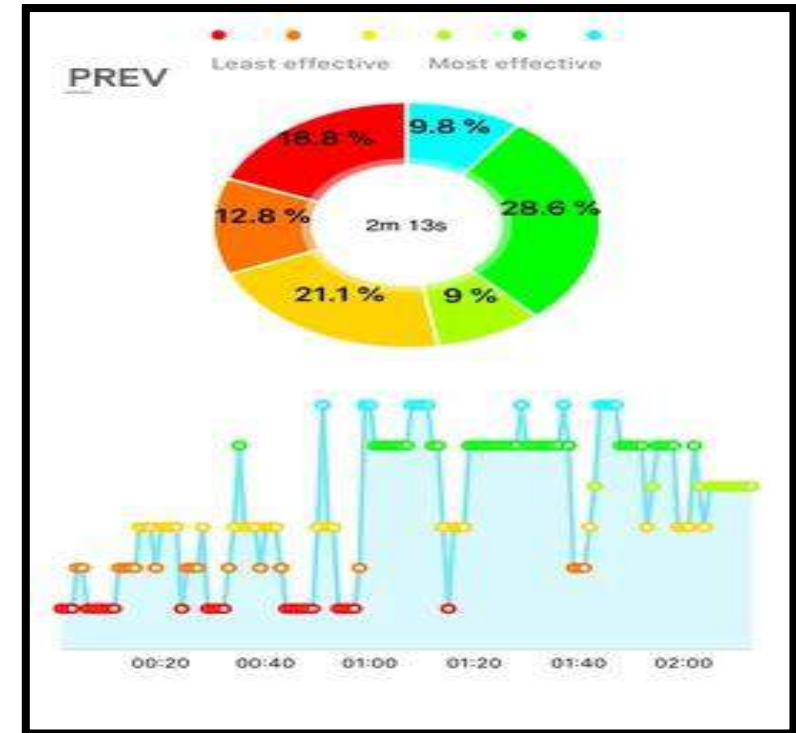
- 50-10 division.
- 10 min Eye relaxation based on Meditation value.





# Features

- Teacher can generate student's attention report.
- Fetching student's disinterest in particular portion of lecture





# Summary



## Work Done

## Future Claim

### Device Automation

True/lie detection  
Using 8 signals  
Using Raw Data  
Using Beta Signal.  
Implement ML using NeuroSky  
Attention level  
One Device can be controlled.

### eVidhya

1. According to  
Student's  
Concentration  
Video will be  
Paused/Resume

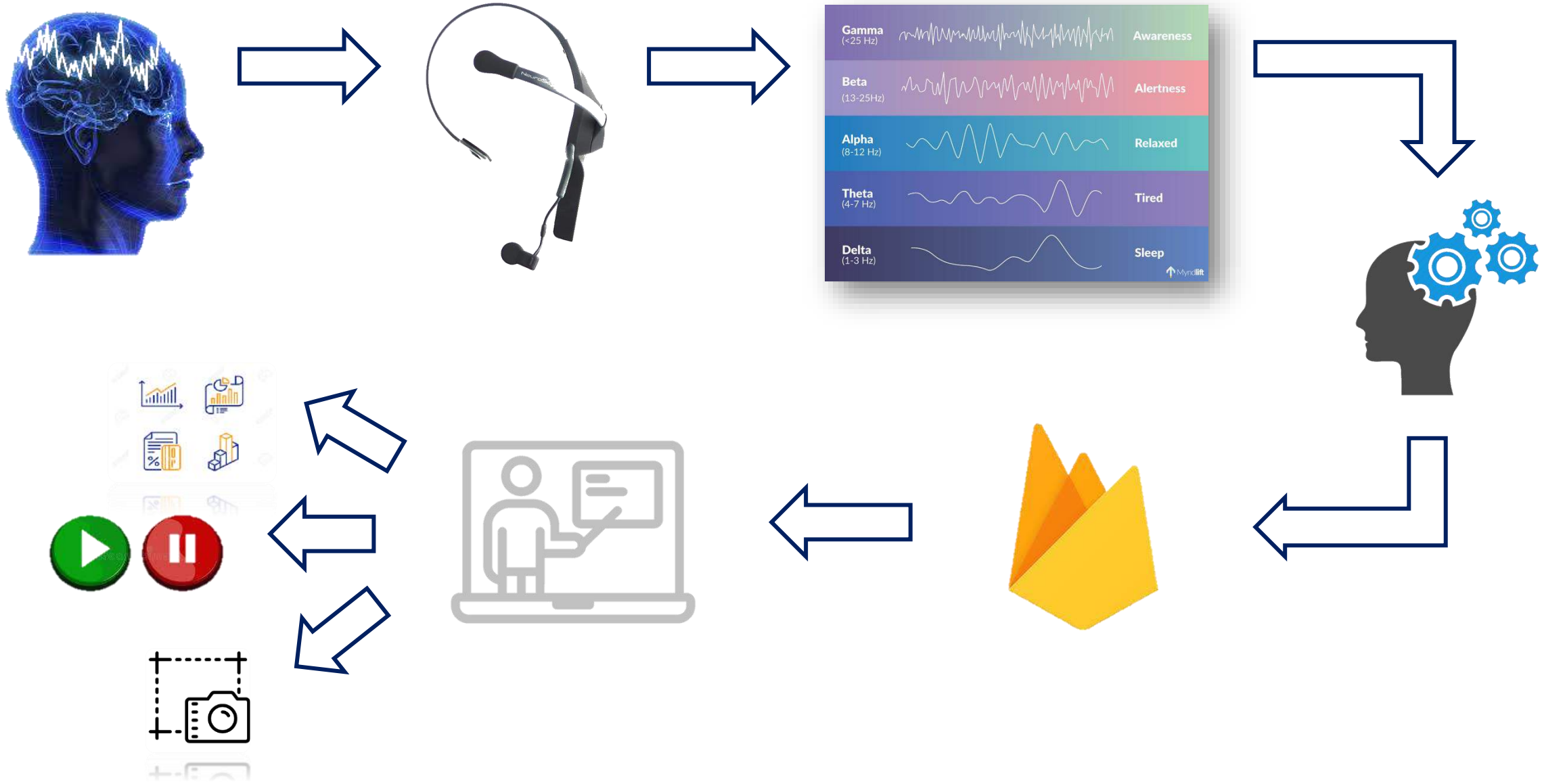
### eVidhya

1. Remove Arduino  
2. Web Portal  
1. Meditation  
2. Screenshot  
3. Report Analysis

#### Additional Feature

We try to classified left and right blinks

# Flow Of System





## Work Done

# Summary



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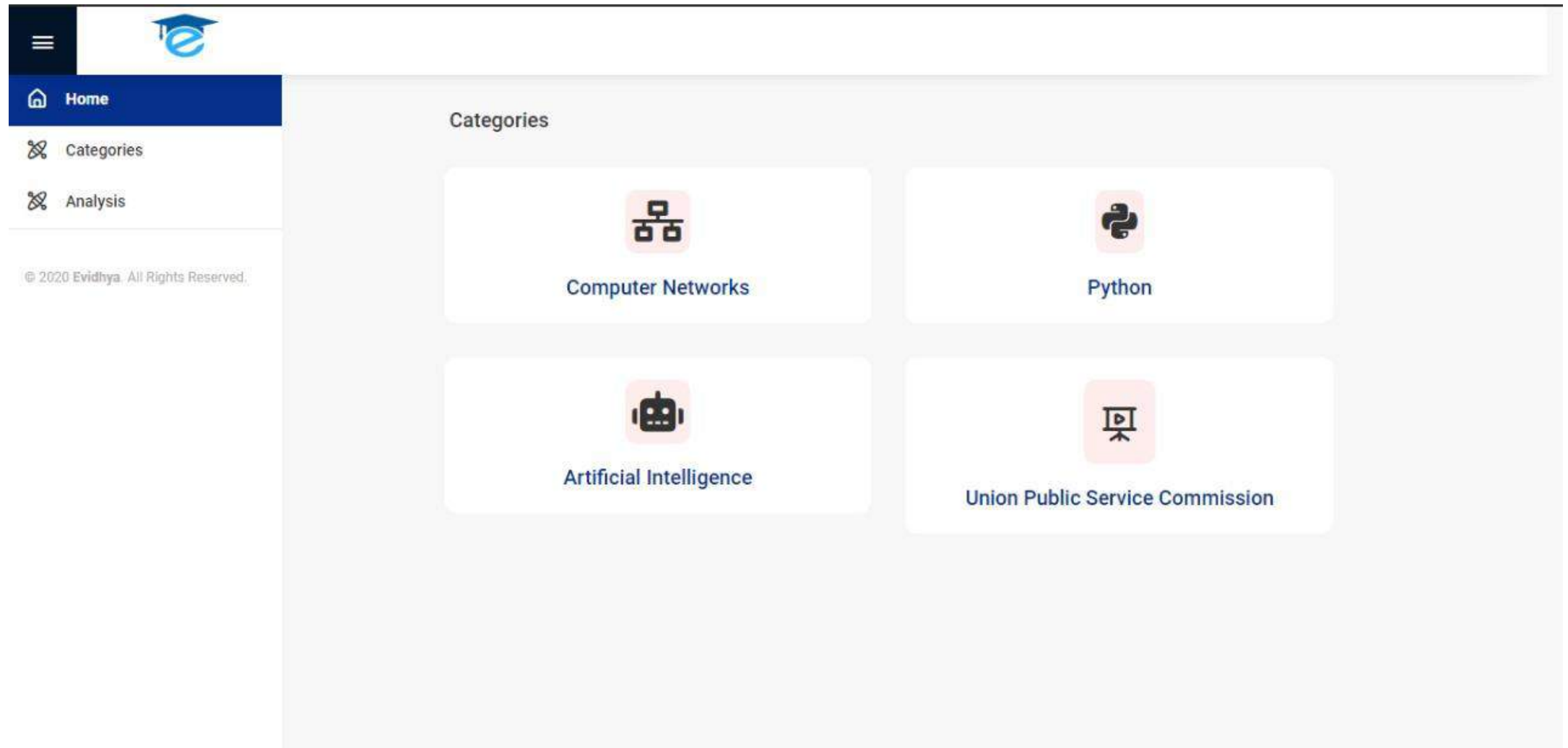
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# Web portal





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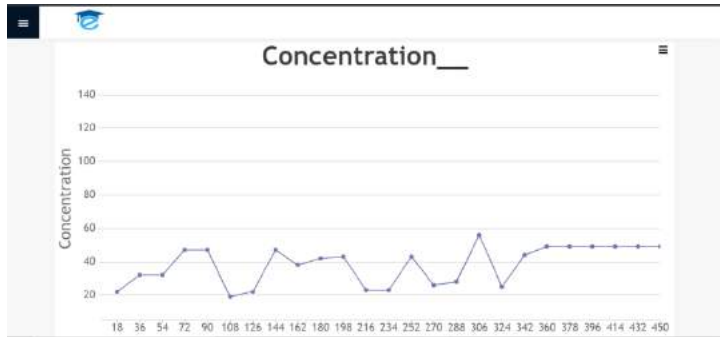
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# Attention and meditation graph

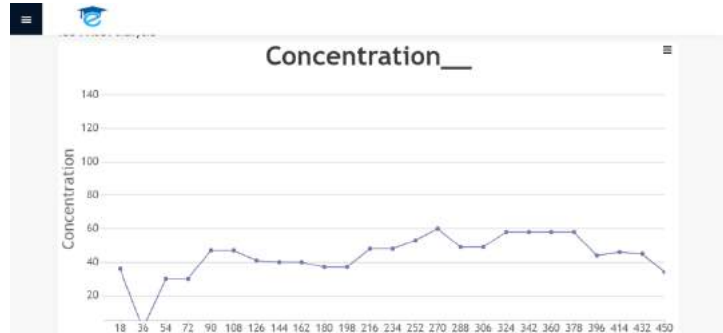
Attention



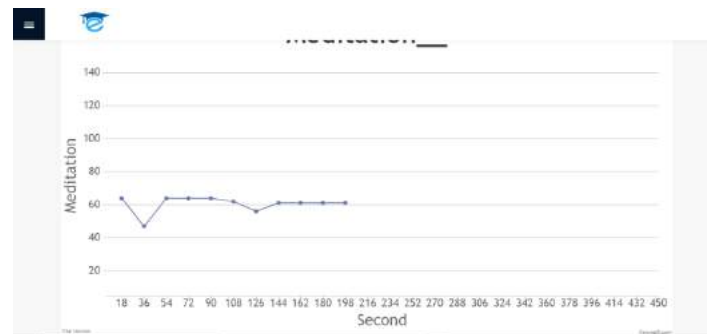
Meditation



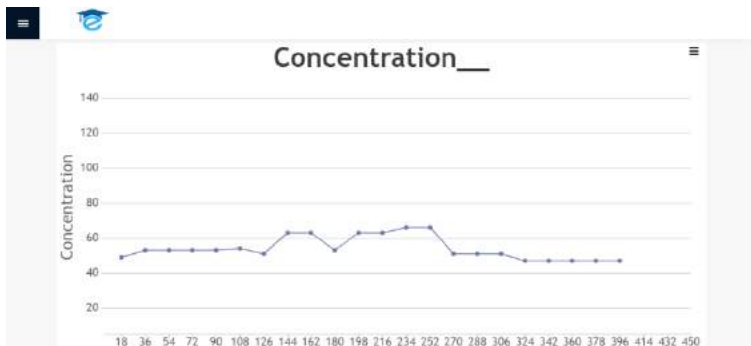
Attention



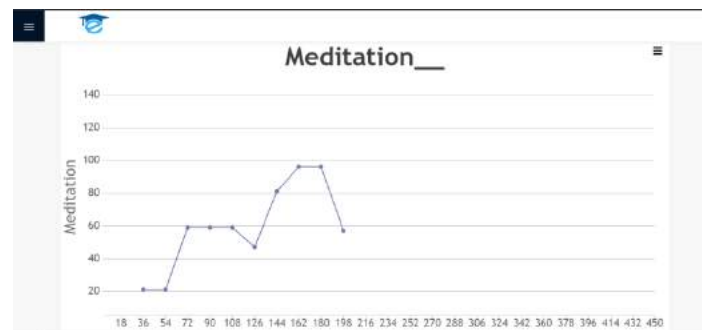
Meditation



Attention



Meditation





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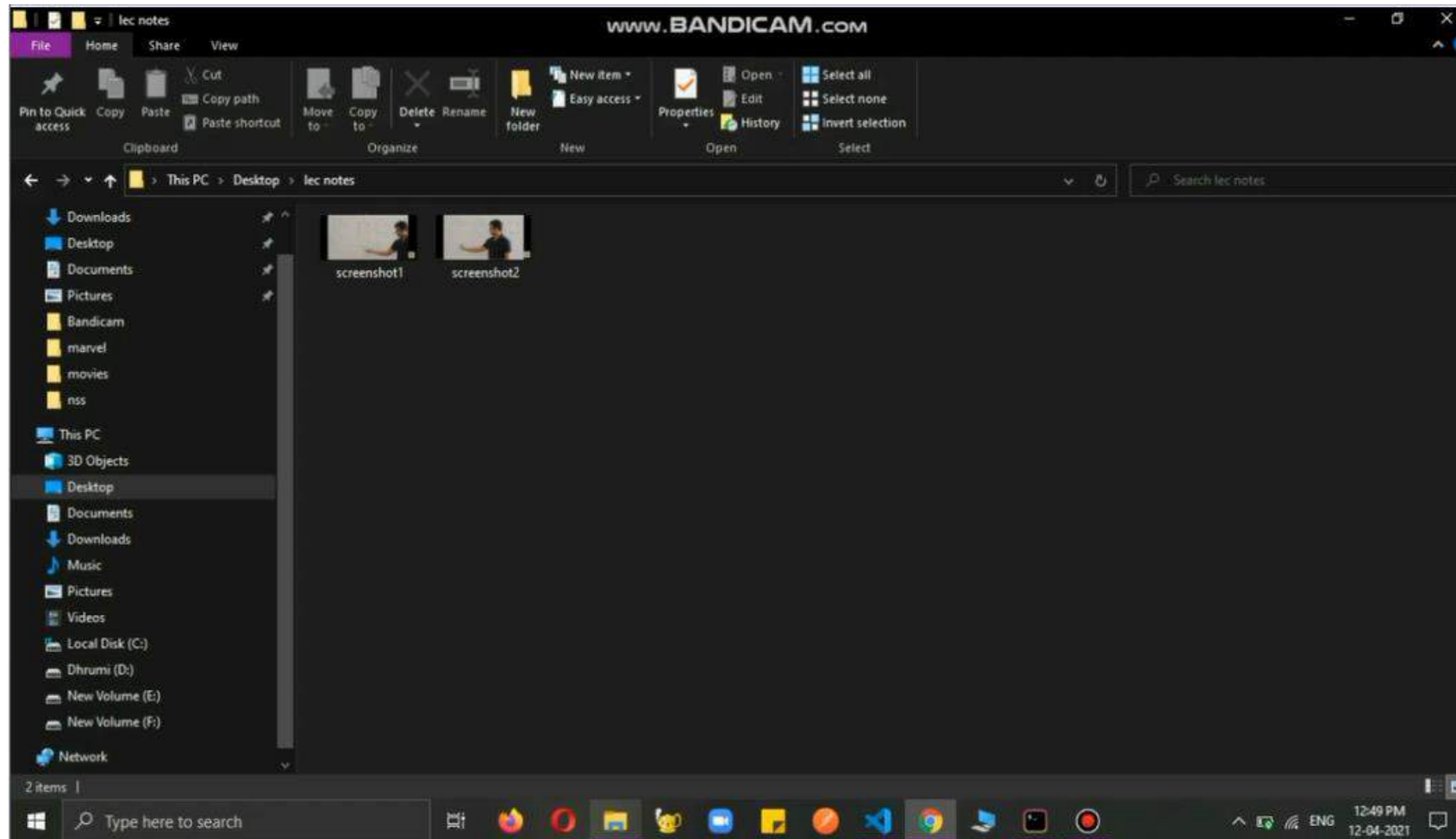
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Additional Feature

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# Screenshot using eye blink

- Student can easily take a screenshot of particular screen at a time using just by their blink.





## Work Done

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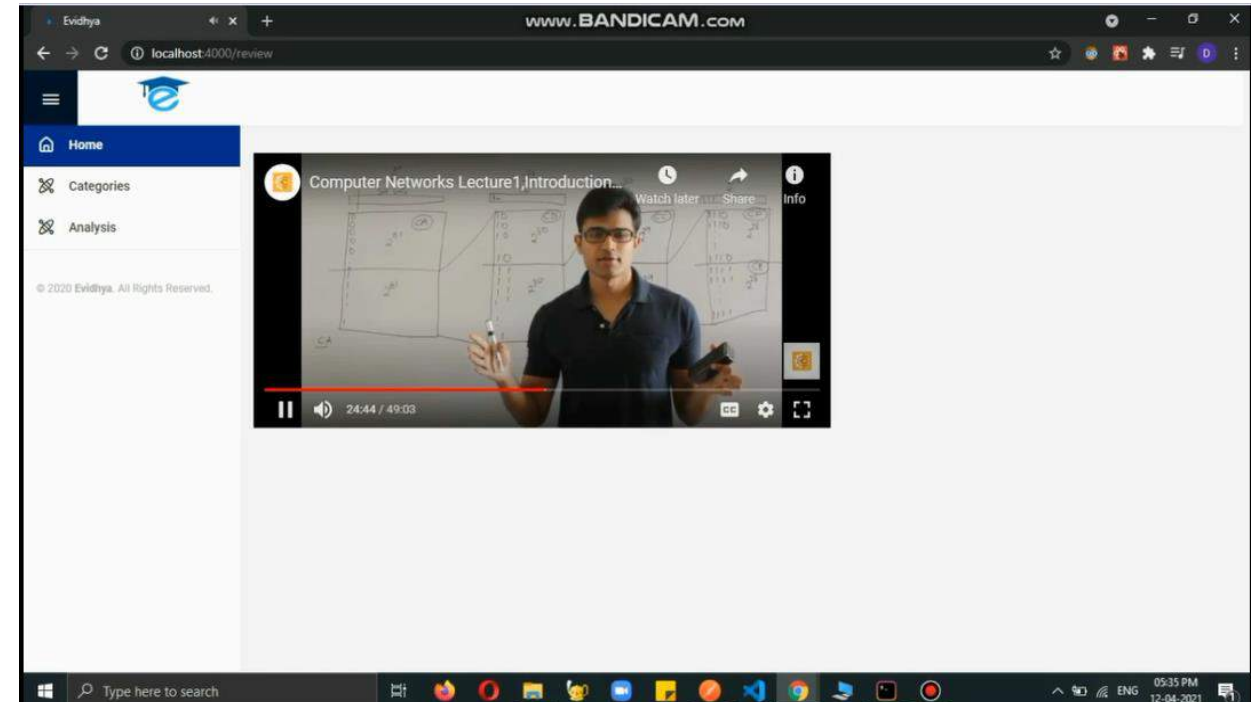
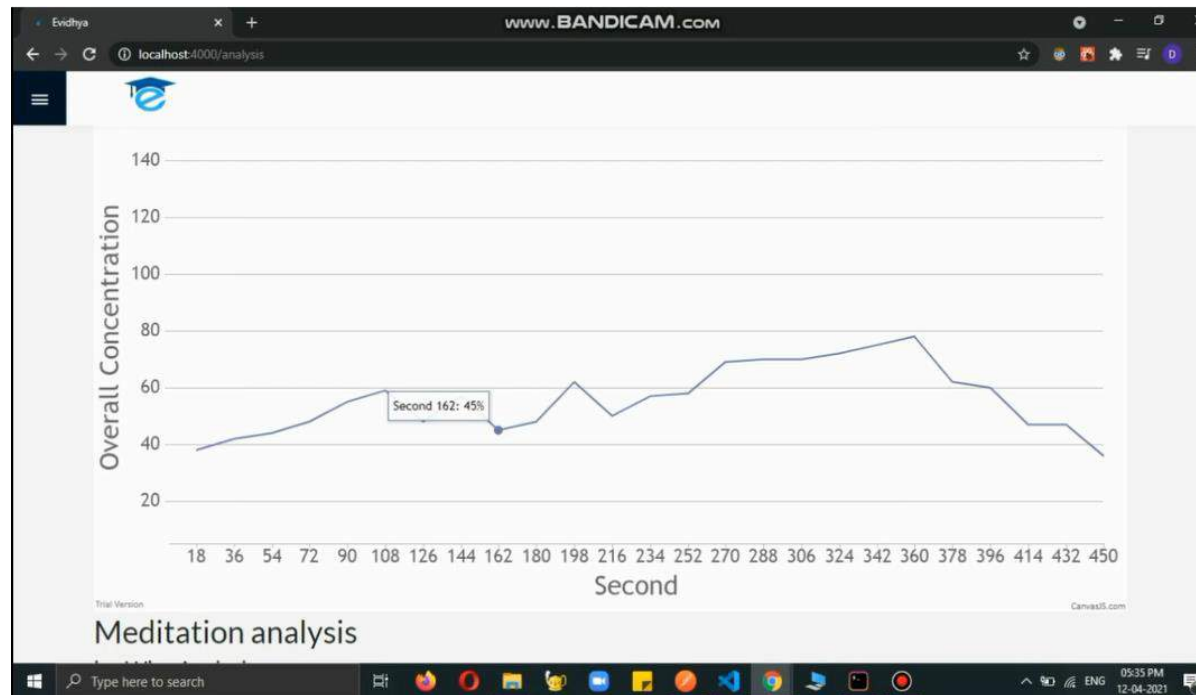
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# Students average graph and analysis

- By click on any point on Graph, Educator can get at which topic concentration was lapse.





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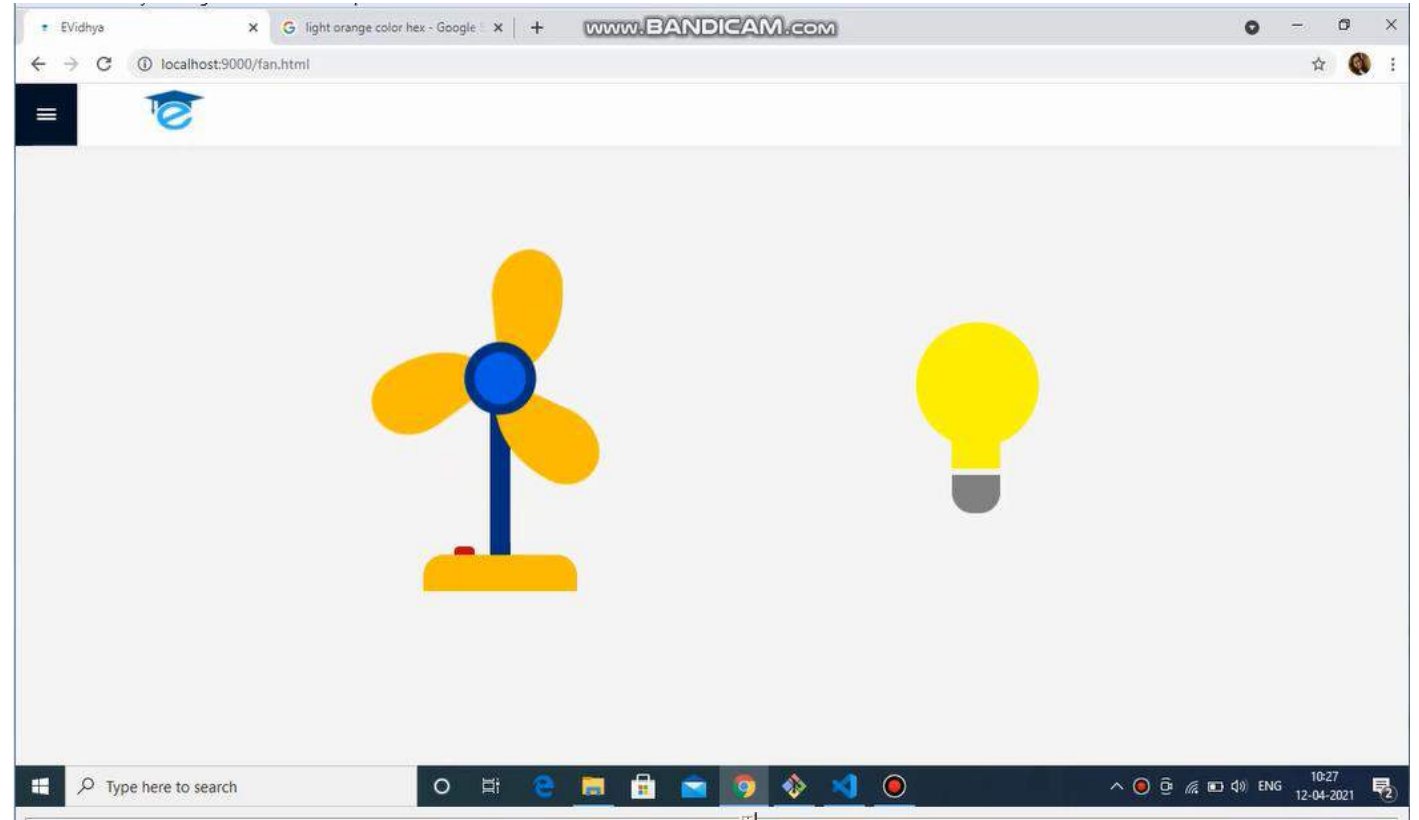
Additional Feature

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# Device automation using eye blink

- By applying machine learning we successfully separated both right and left blinks.
- It enable a student to control their surrounding devices by just using their left or right blinks.





## Work Done

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# Question Answer

**Thank You**