

# **St. Joseph's College Of Engineering , Chennai**

**DEMS - DOMESTIC EMOTION MONITORING SYSTEM**



**TEAM  
RAVAGERS**

1. CHARAN VELAVAN - ECE
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5. DUSARI KAUSHIK RAGHAVA - ECE

**PRODUCT DEMONSTRATION LINK**

<https://drive.google.com/file/d/1iBJ43BQU1Wp7gb67GP0llq6eSw1Zdu48/view?usp=sharing>

## **PROBLEM STATEMENT**

[Good health and well-being]



- **43.8 million adults** experience mental illness in a given year globally. The World Health Organization (**WHO**) states **5.6 crore Indians** suffer from depression and other mental disorders.
- **Countless hours** are being wasted on analysing a patient with a mental disorder.

**SOURCE** [www.who.int](http://www.who.int)

# SUSTAINABLE DEVELOPMENT GOALS

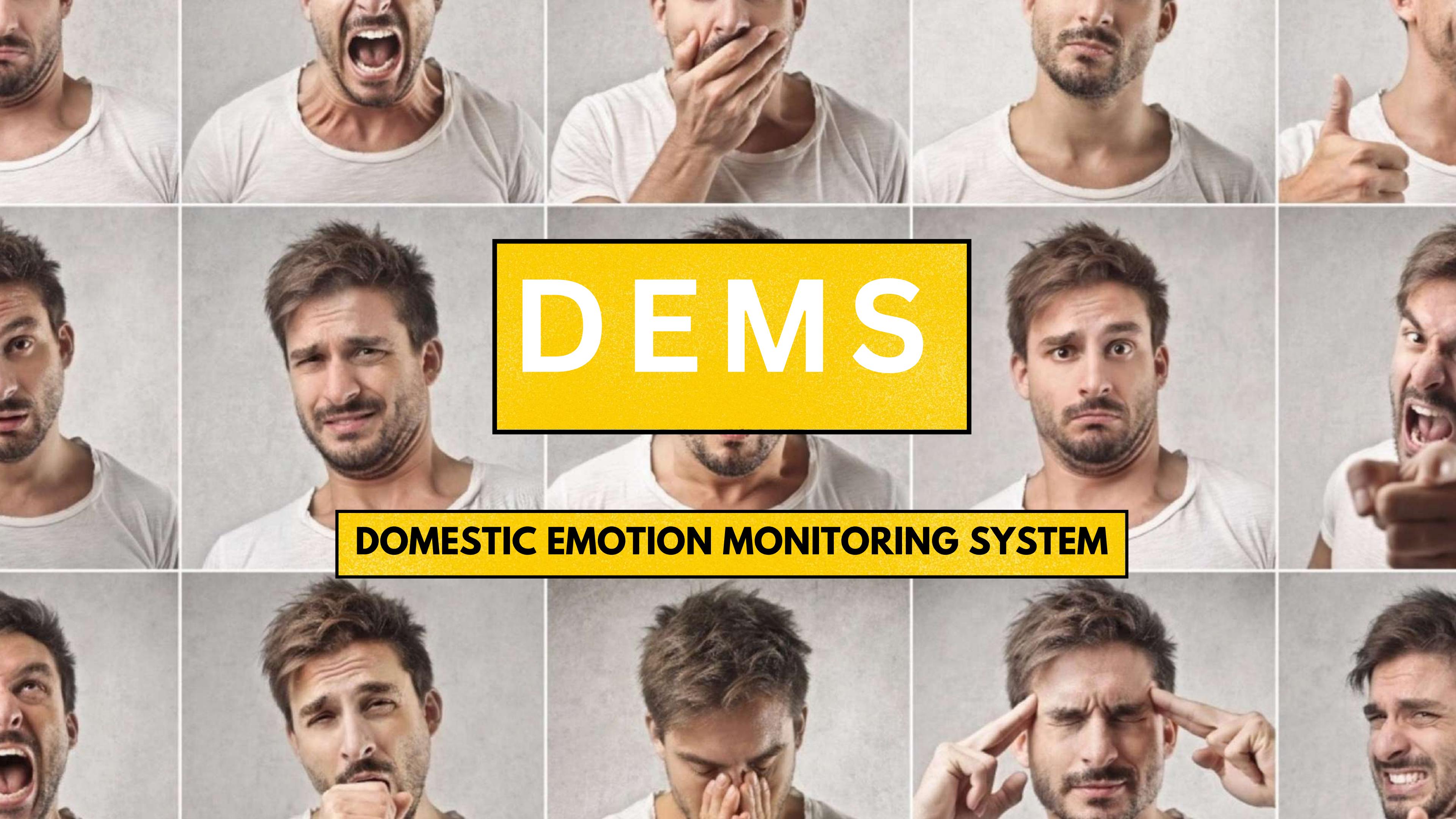
## [17 SDG GOALS]

### 3 GOOD HEALTH AND WELL-BEING



- Goal 3 aims to ensure healthy lives and promote well-being for all, at all ages.
- Health and well-being are important at every stage of one's life, starting from the beginning.

SOURCE <https://data.unicef.org/sdgs/goal-3-good-health-wellbeing/>



**DEMS**

**DOMESTIC EMOTION MONITORING SYSTEM**

# DEMS - An Overview

- Helps, assess and provide insights to doctor prior to consultation and aids during investigation.
- Analyses facial expressions and predicts the following emotions(angry,happy,sad and neutral).
- This innovation enhances mental health evaluation, empowering professionals to offer personalized interventions and improving patient outcomes.



# Why DEMS?

- The mental state and the variation of emotion clearly depends on the individual but the variation of emotion can be measured from the individual's past data.
- The final diagnosis may take weeks or even years which is purely based on the perspective of the psychiatrist .
- Our project's main aim is to speed up the process of diagnosis by providing the required data along with a graphical analysis of the emotions .



# TECHNOLOGY STACK



PYCHARM



LINUX OS



HP WEBCAM  
720p W100



NO CODE MIT APP  
INVENTOR



GITHUB



STREAMLIT

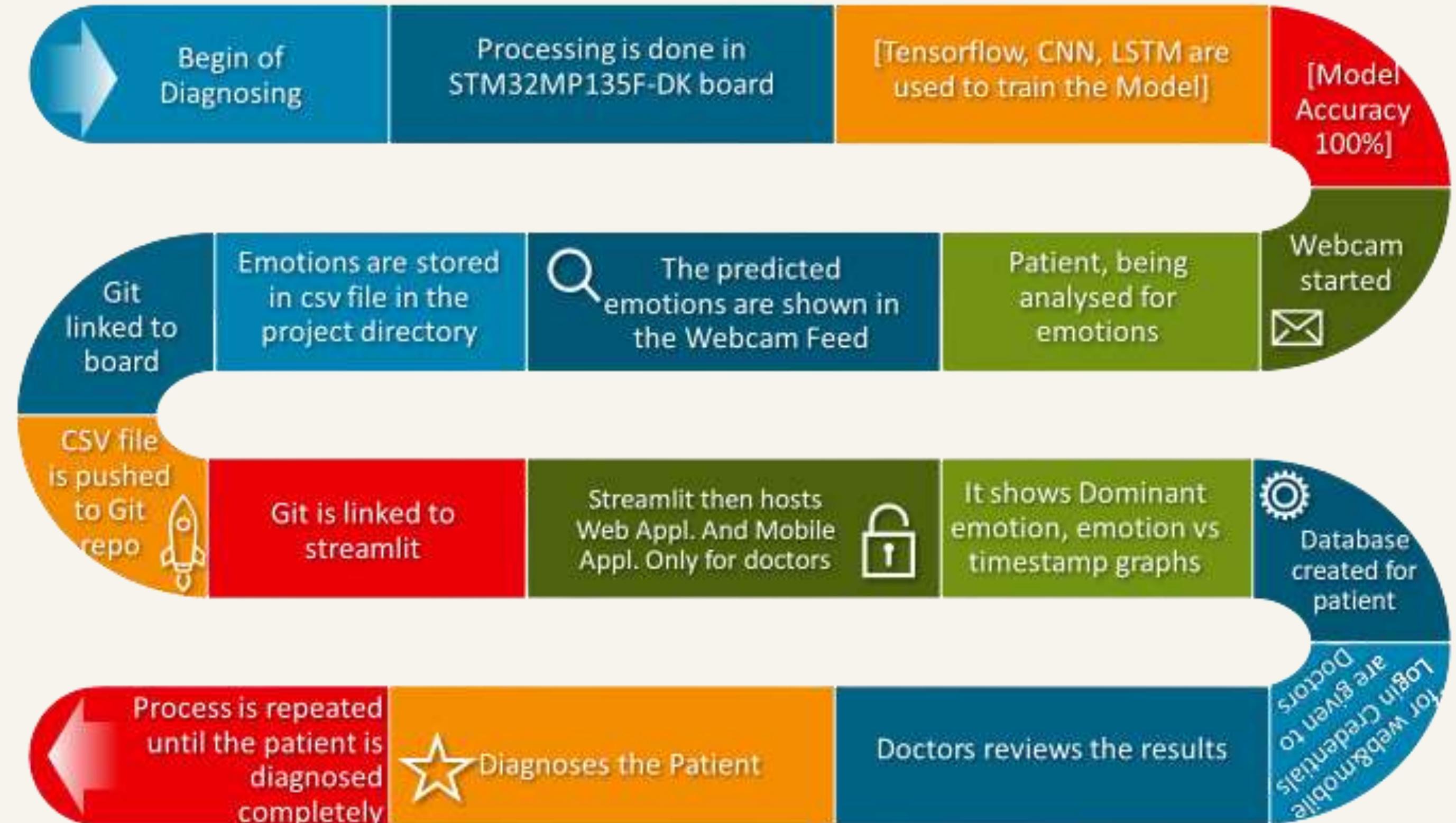


SanDisk  
STORAGE 64Gb  
SD CARD



STM32MP135F-DK  
Arm Cortex – A7 / 1GHz

# WORK FLOW



# FEATURES OF DEMS

- Innovative**
  - Highly Optimised code, can be run with high accuracy in any low end, embedded devices.
  - Has a mobile application as well as a web application.
- Sustainable**
  - The Model is trained using Tensorflow and thousands of labelled data set.
  - It used LSTM and CNN algorithm. Provides higher accuracy.
- Feasible**
  - Very helpful to psychiatrists to analyse their patients by speeding down the investigation process.
- Impactful**
  - Helps fast diagnosis in all age category patients with mental disorder.
- User Friendly**
  - The webapp and Mobile app are simple to use and makes the diagnosis of the patient by the doctor easier and at any place.
- Scalable**
  - Powerful Boards and model can be used to detect multiple patients emotions.
  - Can be used to detect multiple emotions and other Mental disorder

# EXPERT'S VIEW

## ACKNOWLEDGEMENT OF DEMS

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Head P.G and Research  
Department of Rehabilitation Science  
Holy Cross College (Autonomous)  
Tiruchirapalli -620002  
Tamil Nadu

“ I like this project's emphasis on improving emotional well-being and addressing psychological issues as a medical professional. A complete approach is demonstrated by the extensive examination of emotional expressions in high-risk individuals, such as stress and mood swings, as well as the evaluation of intensity, causative causes, and repercussions. The quality-of-life intervention options are consistent with psychological rehabilitation principles. The project's emphasis on meaningful living and normalcy highlights its dedication to providing comprehensive care. This programme has the ability to significantly improve the lives of those who are struggling emotionally. “



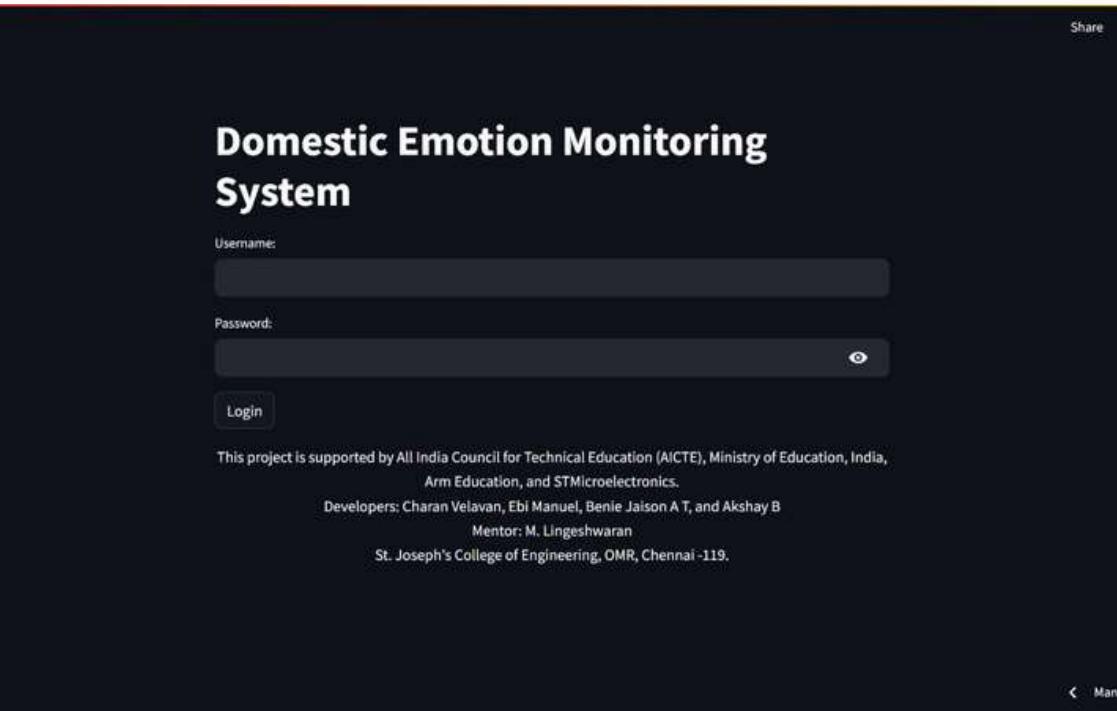
Dr. A. TURIN MARTINA,  
Associate Professor and Head  
PG and Research  
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Holy Cross College (Autonomous)  
Tiruchirappalli - 620 002



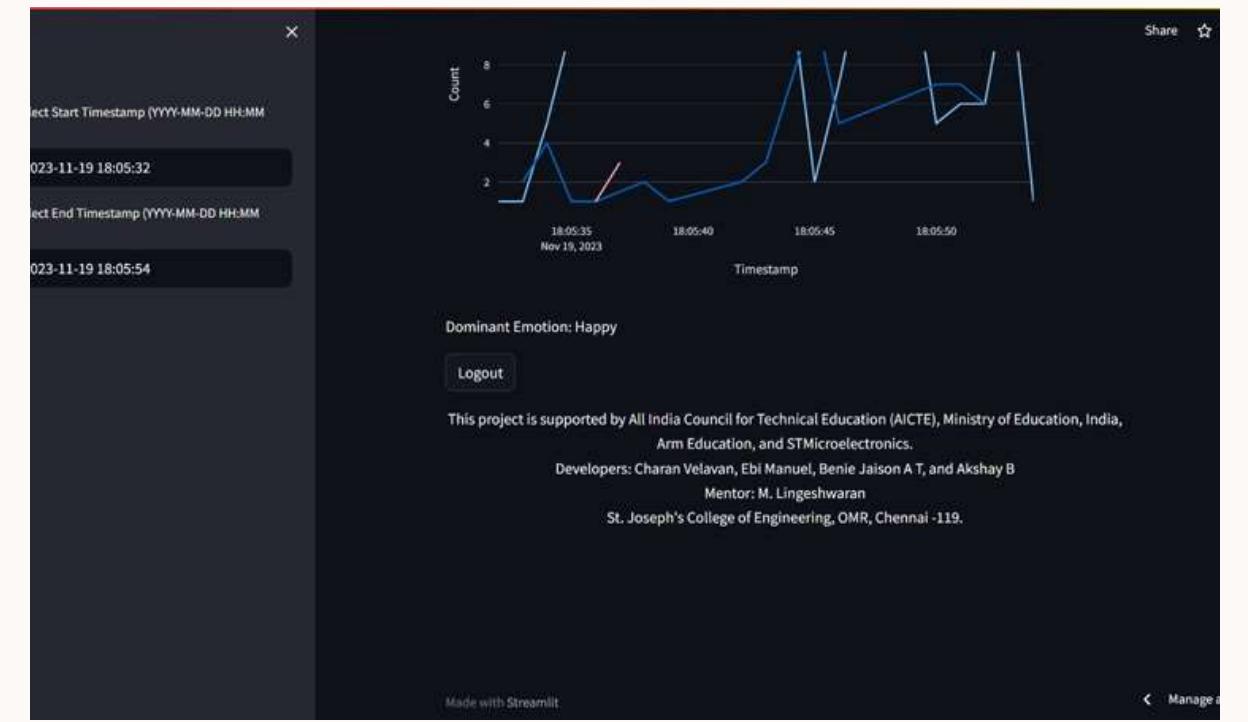
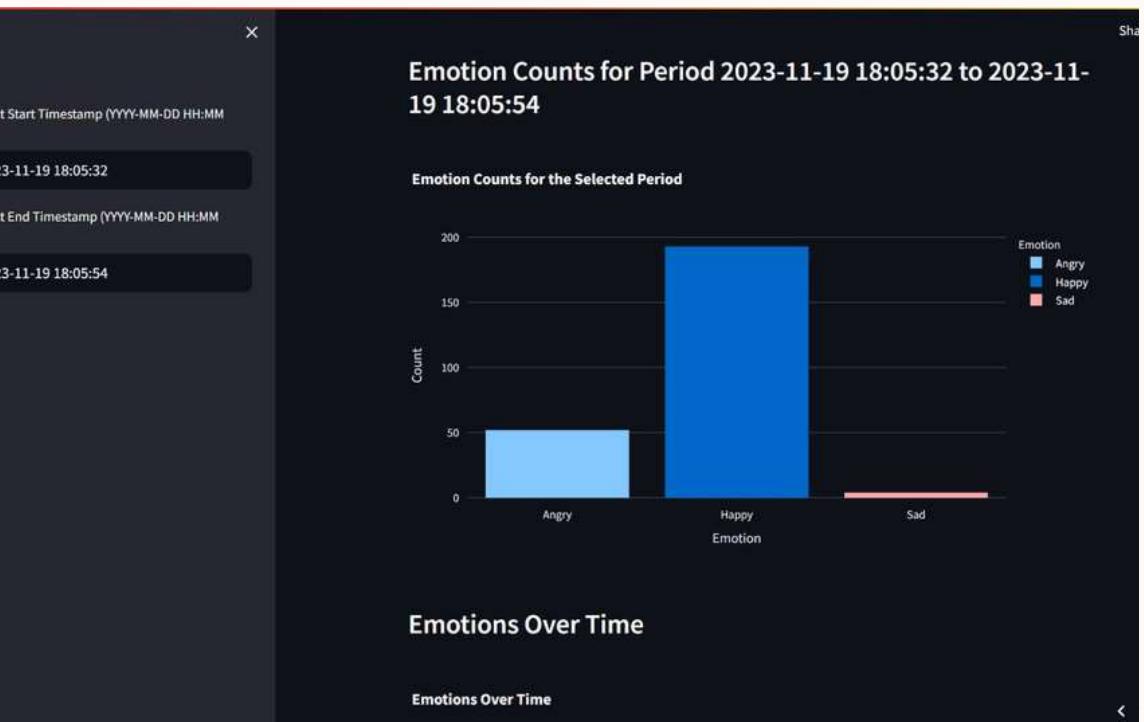
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# DEMS

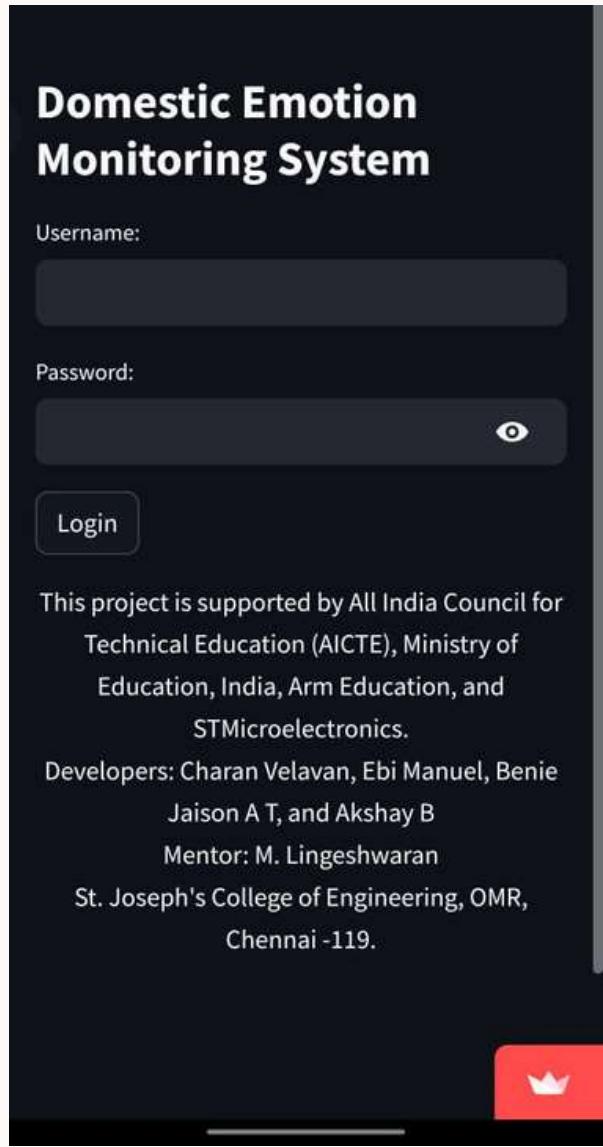
# WEB APP



The dashboard has a dark theme. At the top right, a green header bar says "Welcome, user1!". Below it, a section titled "Preprocessed Data" displays a table with columns: Emotion, Timestamp, Date, Time, and Emotion\_Encoded. The data shows 10 entries of Happy and Angry emotions at various times on November 19, 2023. To the right, a section titled "Emotion Counts for Period 2023-11-19 18:05:32 to 2023-11-19 18:05:54" shows a bar chart with three bars: Angry (~50), Happy (~200), and Sad (~10). At the bottom, a line graph titled "Emotions Over Time" plots "Count" against "Timestamp" from Nov 19, 2023, 18:05:35 to 18:05:55, showing peaks for Happy and Angry emotions.



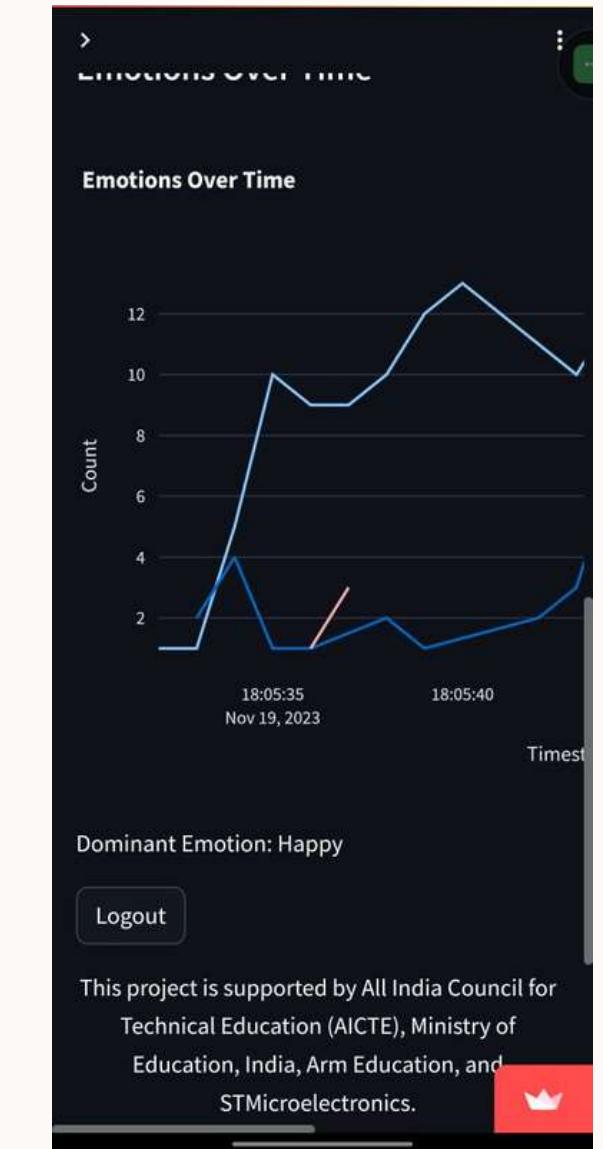
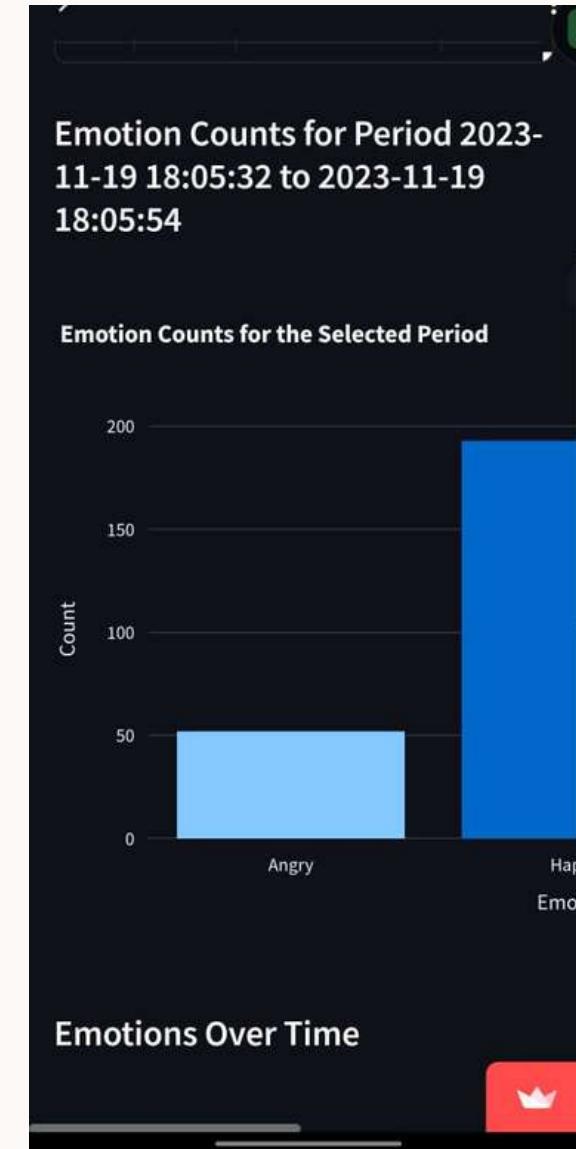
# DEMS MOBILE APP



The preprocess data screen displays a table titled "Preprocessed Data" with columns for Emotion, Timestamp, and Date. The data shows 10 entries of emotions recorded at different times on November 19, 2023. The timestamp column includes milliseconds.

	Emotion	Timestamp	Date
0	Happy	2023-11-19 18:05:32	2023-11-1
1	Angry	2023-11-19 18:05:33	2023-11-1
2	Angry	2023-11-19 18:05:33	2023-11-1
3	Happy	2023-11-19 18:05:33	2023-11-1
4	Happy	2023-11-19 18:05:34	2023-11-1
5	Happy	2023-11-19 18:05:34	2023-11-1
6	Happy	2023-11-19 18:05:34	2023-11-1
7	Angry	2023-11-19 18:05:34	2023-11-1
8	Angry	2023-11-19 18:05:34	2023-11-1
9	Angry	2023-11-19 18:05:34	2023-11-1

Emotion Counts for Period 2023-11-19 18:05:32 to 2023-11-19 18:05:54



# **EXPENSE/BUDGET**

- STM32 MICROCONTROLLER BOARD – 8000 INR
  - HIGH DEFINITION CAMERAS – 5000 INR
  - MISCELLANEOUS EXPENSES – 2000 INR
- TOTAL – 15,000 INR

PRODUCT DEMONSTRATION LINK

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# CONCLUSION

In conclusion,**DEMS** is the perfect stop for psychiatrists in order to speed up their diagnosis process of the patients with higher and better accuracy

**DEMS** - Your journey to emotional well-being starts here.