

St. Joseph's College Of Engineering , Chennai

DEMS - DOMESTIC EMOTION MONITORING SYSTEM



TEAM

RAVAGERS

1. CHARAN VELAVAN - ECE
2. EBI MANUEL S R - ECE
3. AKSHAY B - ECE
4. MOTHEESWARAN - ECE
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

SUSTAINABLE DEVELOPMENT GOALS

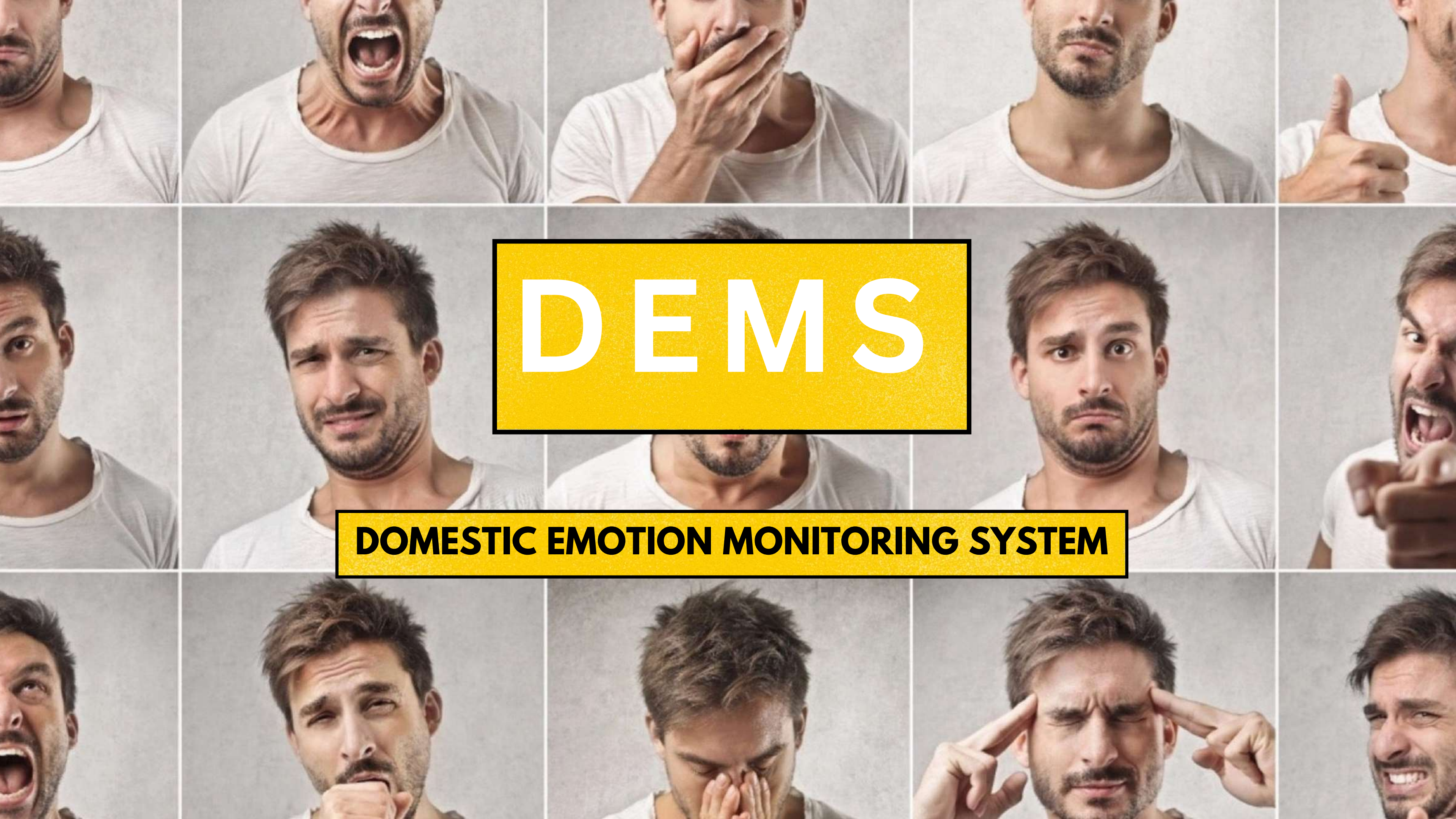
[17 SDG GOALS]

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**



**STM32MP135F-DK
Arm Cortex – A7 / 1GHz**



GITHUB

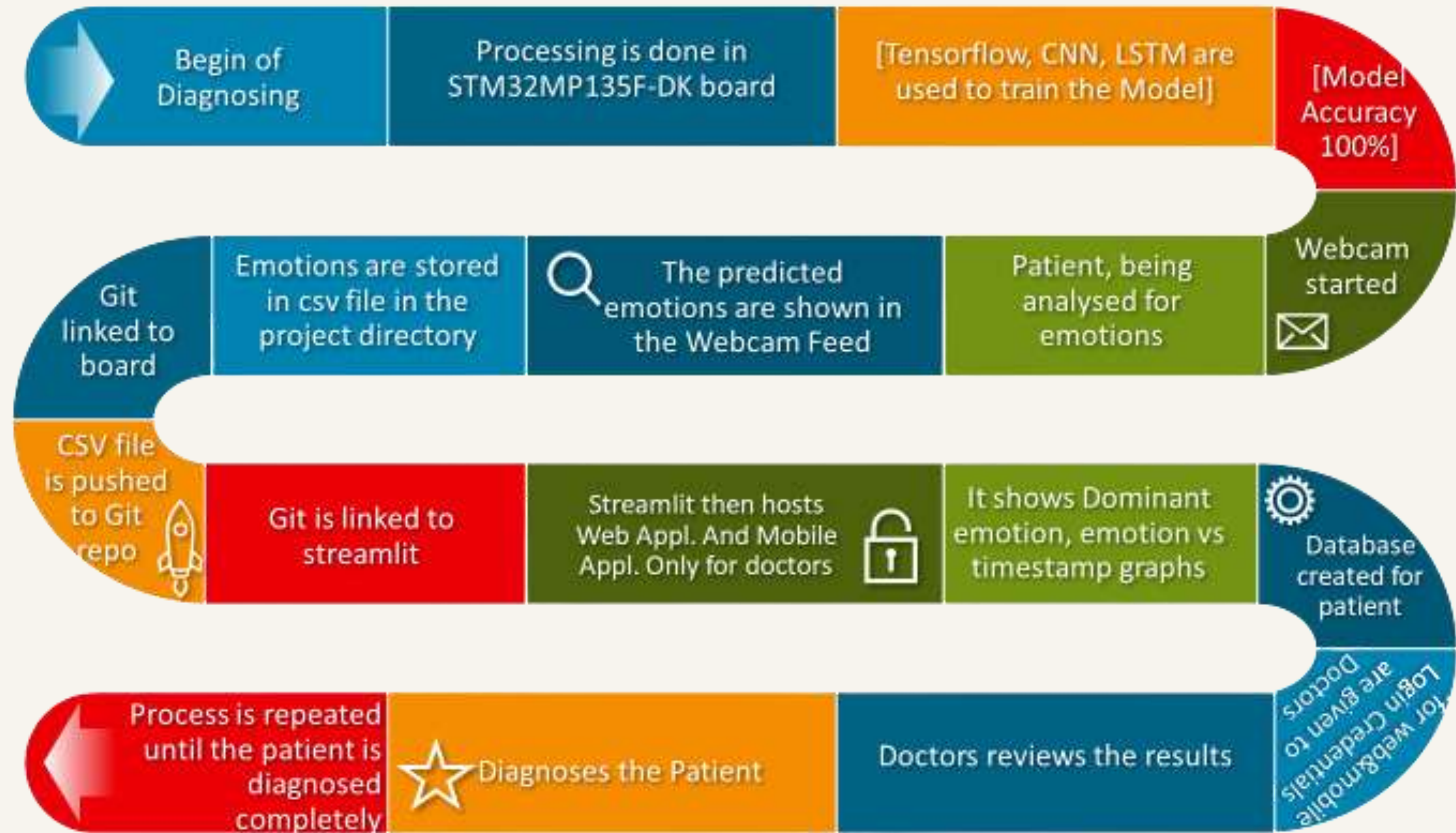


STREAMLIT



**SanDisk
STORAGE 64Gb
SD CARD**

WORK FLOW



FEATURES OF DEMS

- 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.

Innovative



- The Model is trained using Tensorflow and thousands of labelled data set.
- It used LSTM and CNN algorithm. Provides higher accuracy.

Sustainable



- Very helpful to psychiatrists to analyse their patients by speeding down the investigation process.

Feasible



- Helps fast diagnosis in all age category patients with mental disorder.

Impactful



- The webapp and Mobile app are simple to use and makes the diagnosis of the patient by the doctor easier and at any place.

**User
Friendly**



- Powerful Boards and model can be used to detect multiple patients emotions.
- Can be used to detect multiple emotions and other Mental disorder

Scalable



EXPERT'S VIEW

ACKNOWLEDGEMENT OF DEMS

Dr. A . TURIN MARTINA , M.R.Sc(integrated). Ph.D

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
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Head P.G and Research

Department of Rehabilitation Science

Holy Cross College (Autonomous)

Tiruchirapalli -620002

Tamil Nadu

DEMS WEB APP

Share

Domestic Emotion Monitoring System

Username:

Password:

👁

Login

This project is supported by All India Council for Technical Education (AICTE), Ministry of Education, India, Arm Education, and STMicroelectronics.

Developers: Charan Velavan, Ebi Manuel, Benie Jaison A T, and Akshay B

Mentor: M. Lingeshwaran

St. Joseph's College of Engineering, OMR, Chennai -119.

<

Managed

×

Select Start Timestamp (YYYY-MM-DD HH:MM)

2023-11-19 18:05:32

Select End Timestamp (YYYY-MM-DD HH:MM)

2023-11-19 18:05:54

Welcome, user1!

Preprocessed Data

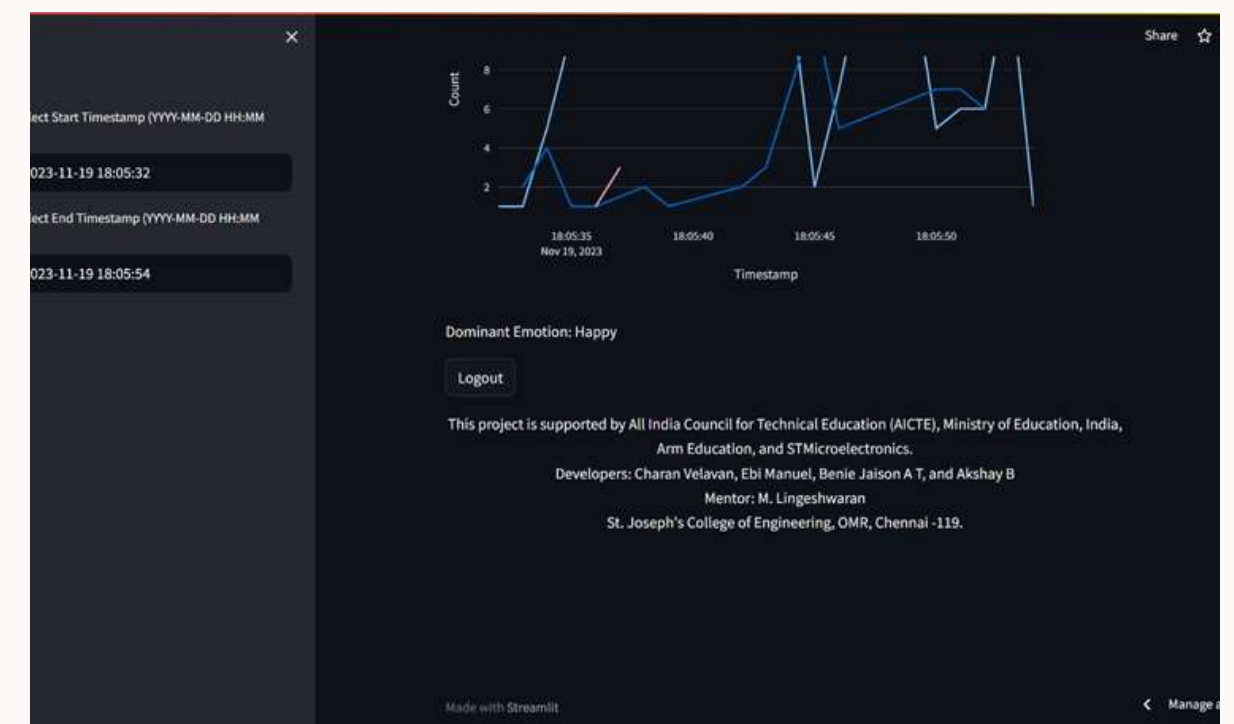
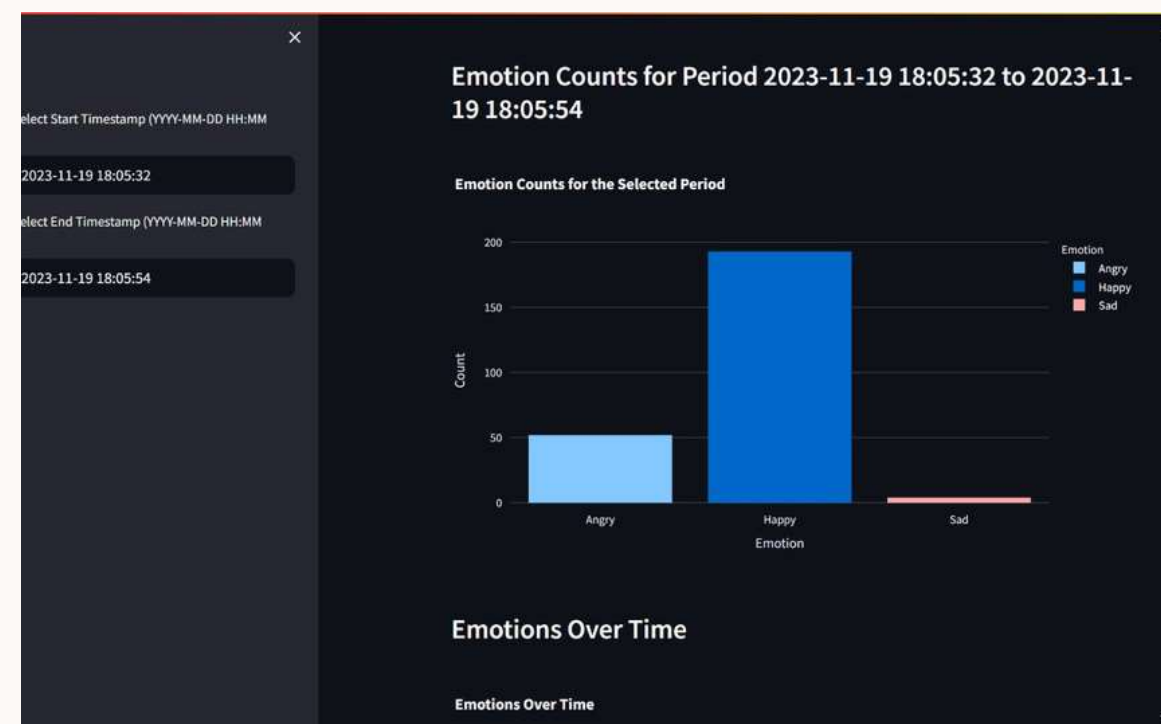
	Emotion	Timestamp	Date	Time	Emotion_Encoded
0	Happy	2023-11-19 18:05:32	2023-11-19	18:05:32	1
1	Angry	2023-11-19 18:05:33	2023-11-19	18:05:33	0
2	Angry	2023-11-19 18:05:33	2023-11-19	18:05:33	0
3	Happy	2023-11-19 18:05:33	2023-11-19	18:05:33	1
4	Happy	2023-11-19 18:05:34	2023-11-19	18:05:34	1
5	Happy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

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

Emotion Counts for the Selected Period

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Managed



DEMS MOBILE APP

Domestic Emotion Monitoring System

Username:

Password:

Login

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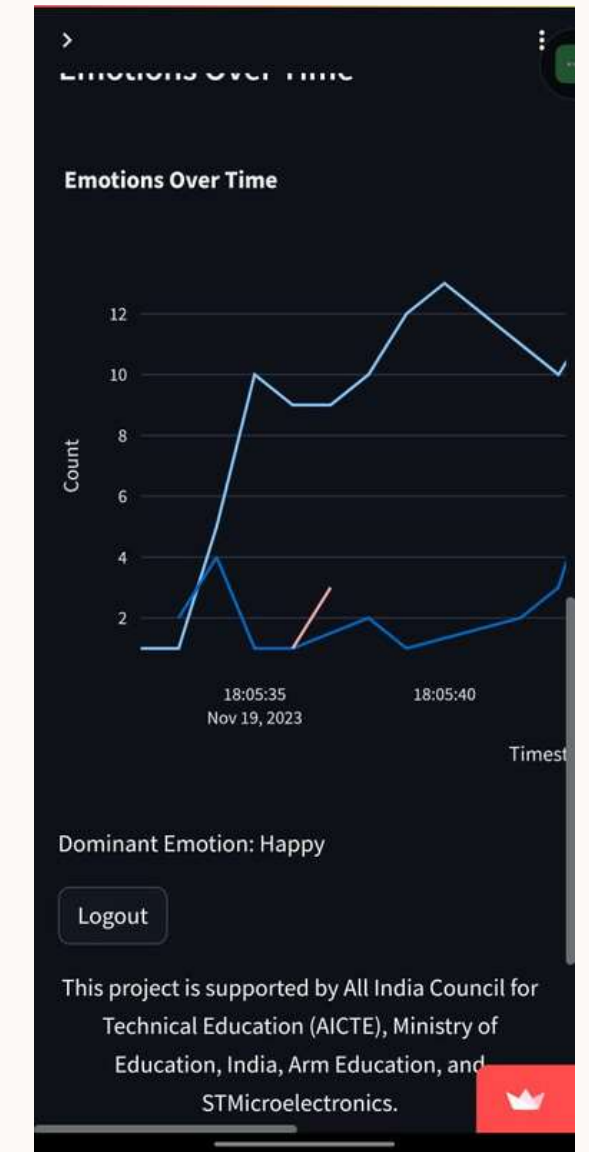
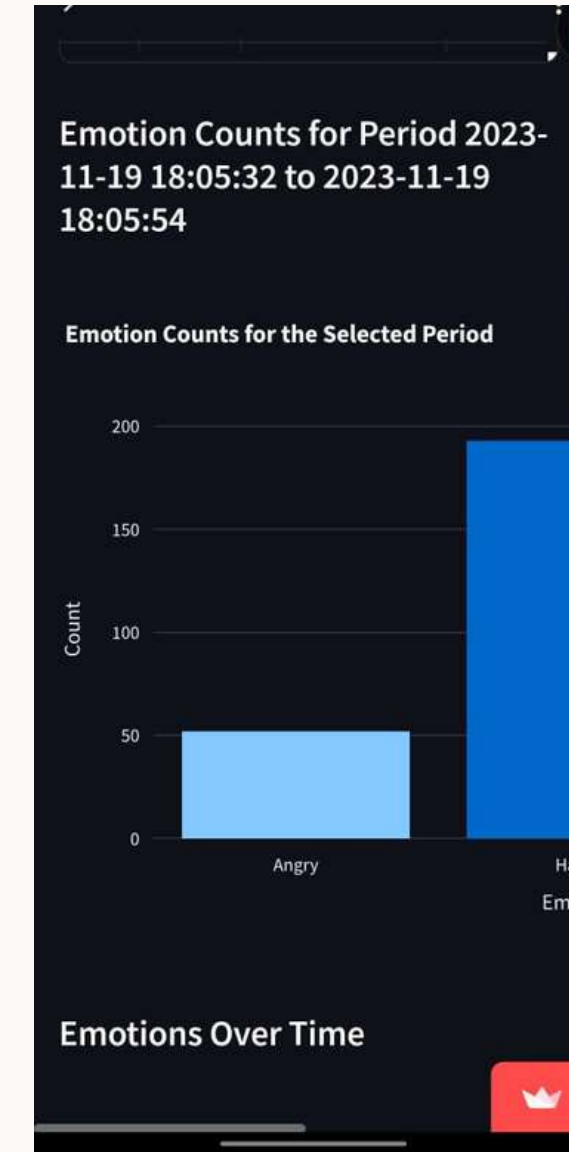
St. Joseph's College of Engineering, OMR, Chennai -119.

Welcome, user1!

Preprocessed Data

	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

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

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.