ONLINE LEARNING PLATFORM FOR HEARING IMPAIRED PEOPLE

Project ID: 2022-59

Logbook - Individual

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Specializing in Data Science

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March 2022

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WEEK 1 – JANUARY 10 TO JANUARY 16

- Read Research Papers on Learning systems and Sri Lankan Sign Language
- Studied Gestures of Sri Lankan Sign Language

WEEK 2 – JANUARY 17 TO JANUARY 23

- Read Research Paper literature
- Identified research gaps

Discussion

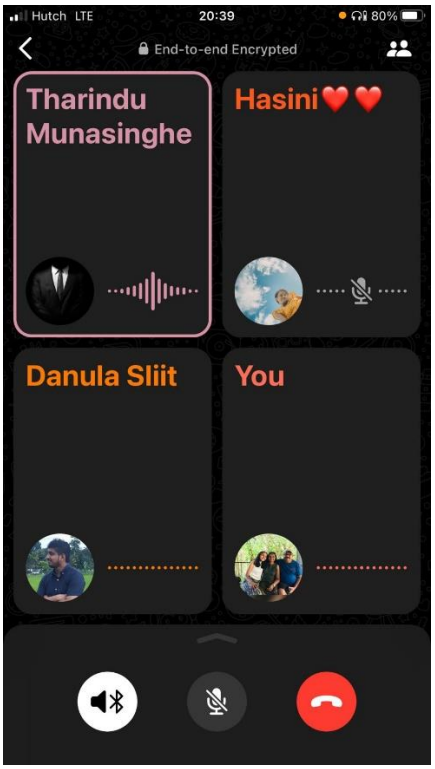

Figure 1: Discussion 1

- Discussion: Research topic finalization

WEEK 3 – JANUARY 24 TO JANUARY 30

- Started Working on Draft Proposal
- Project Charter submission

Discussion

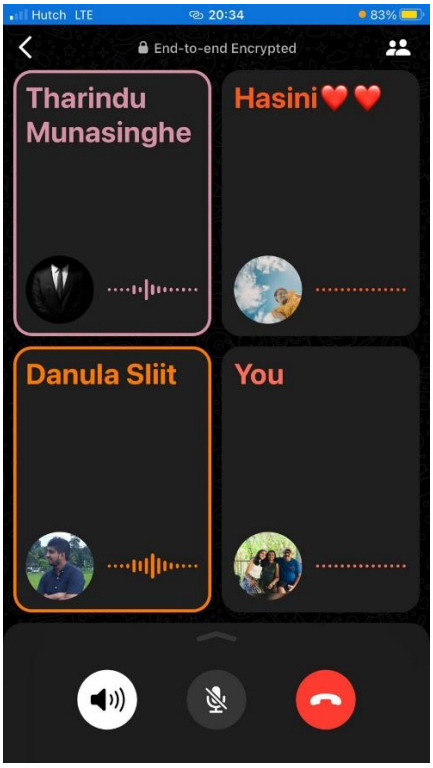

Figure 2: : Discussion 2

- Discussion on Draft Proposal finalization

WEEK 4 – JANUARY 31 TO FEBRUARY 6

- Conducted Literature survey
- Contacted Authorized Sign Language Teaching Institutes
- Proposal Draft Submission.

Discussion

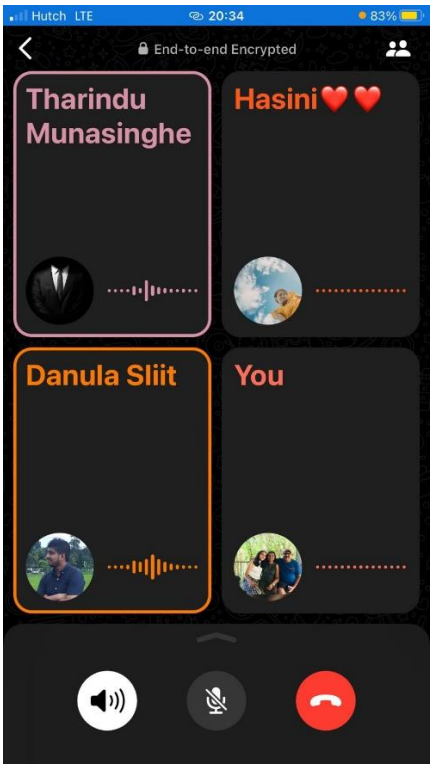

Figure 3: Discussion 3

- Discussion on Proposal Presentation

WEEK 5 – FEBRUARY 7 TO FEBRUARY 13

- Researched on Sign Language Detection methods, Tenserflow object detection models
- Researched on Optimized models for realtime detection
- Prepared for the Proposal Presentation
- Checked and Adjusted time with the group members
- Recorded Demo and Videos for Supervisor Feedback

Discussion

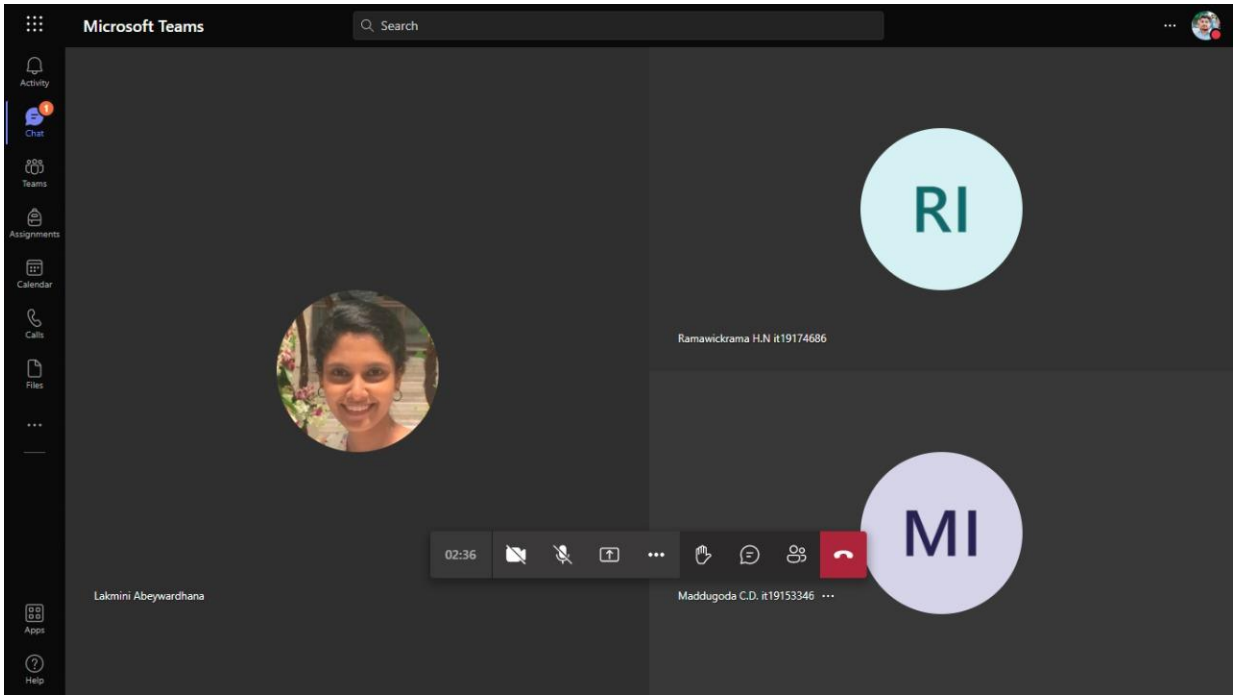

Figure 4: Discussion 4

- Discussion: Supervisor Feedback for the Proposal Presentation on Scope and modifications

WEEK 6 – FEBRUARY 14 TO FEBRUARY 20

- Proposal document Finalization with group members
- Adjusted the fixes suggested by the supervisor
- Submitted Proposal Document

Discussion

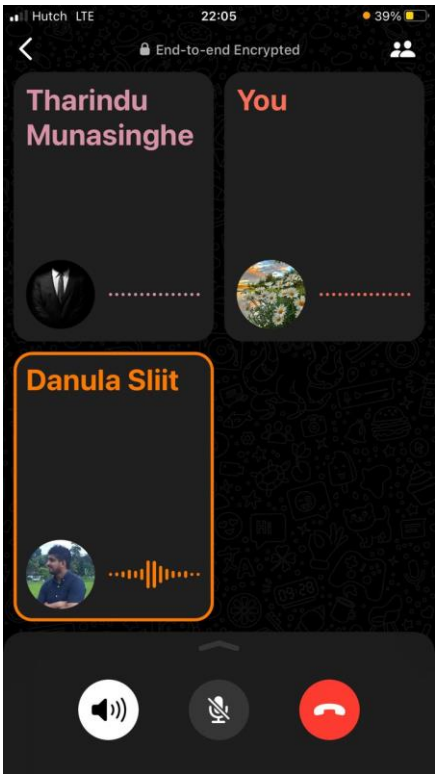

Figure 5: Discussion 5

- Discussion on Final Proportion finalization.

WEEK 7 – FEBRUARY 21 TO FEBRUARY 27

- Researched on optimized tools to use for Language, Backend and Frontend
- Checked already existing models with Jupiter notebook
- Setup environment for Python

WEEK 8 – FEBRUARY 28 TO 6 MARCH

- Started Training for first gesture with Jupiter notebook.
- Tried to optimize the model with Mediapipe holistic
- Converted the code to python and started coding in visual studio

WEEK 9 – MARCH 7 TO MARCH 13

- Created DataSet for the Pose Achchi.
- Referred video Tutorials and optimized the accuracy.
- Tried various tools such as Blender and Maya to build the avatar model

Discussion

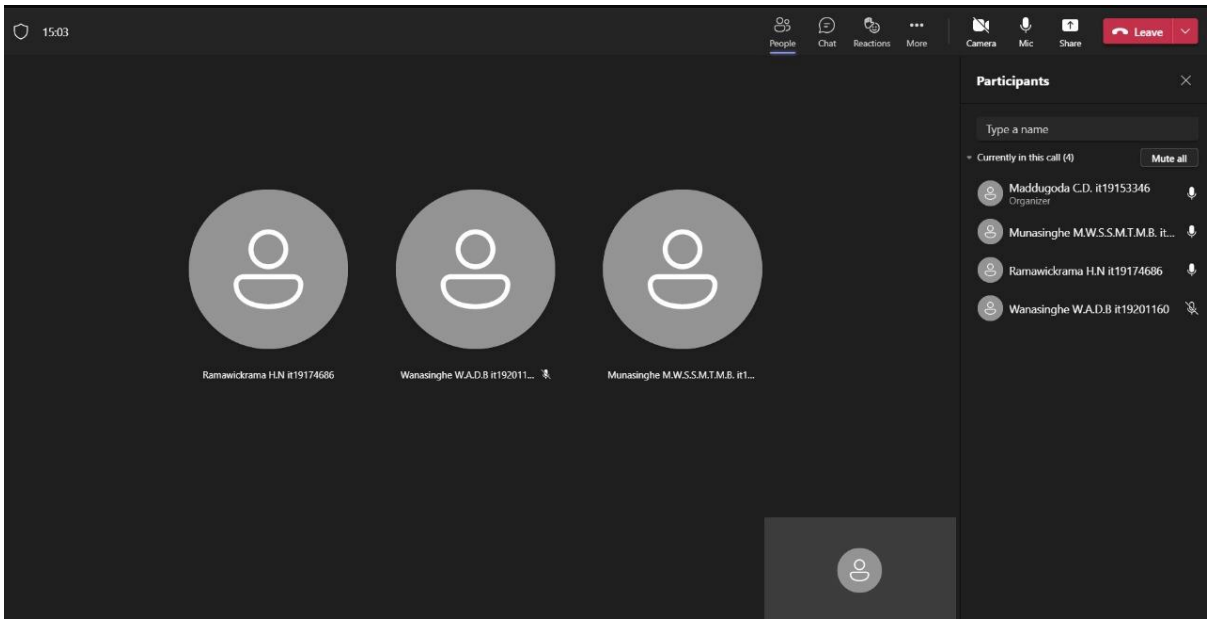

Figure 6: Discussion 6

- Discussion on the progress of work issues and suggestions by other members to fix the issues

WEEK 10 – MARCH 14 TO MARCH 20

- Changed SLSL Detection model
- Researched on best framework for Frontend Development
- Started Developing Frontend With React Js

WEEK 11 – MARCH 21 TO MARCH 27

- Trained Models for Animal gestures
- Optimized the models with LSTM
- Saved the model results with pickle file

Discussion

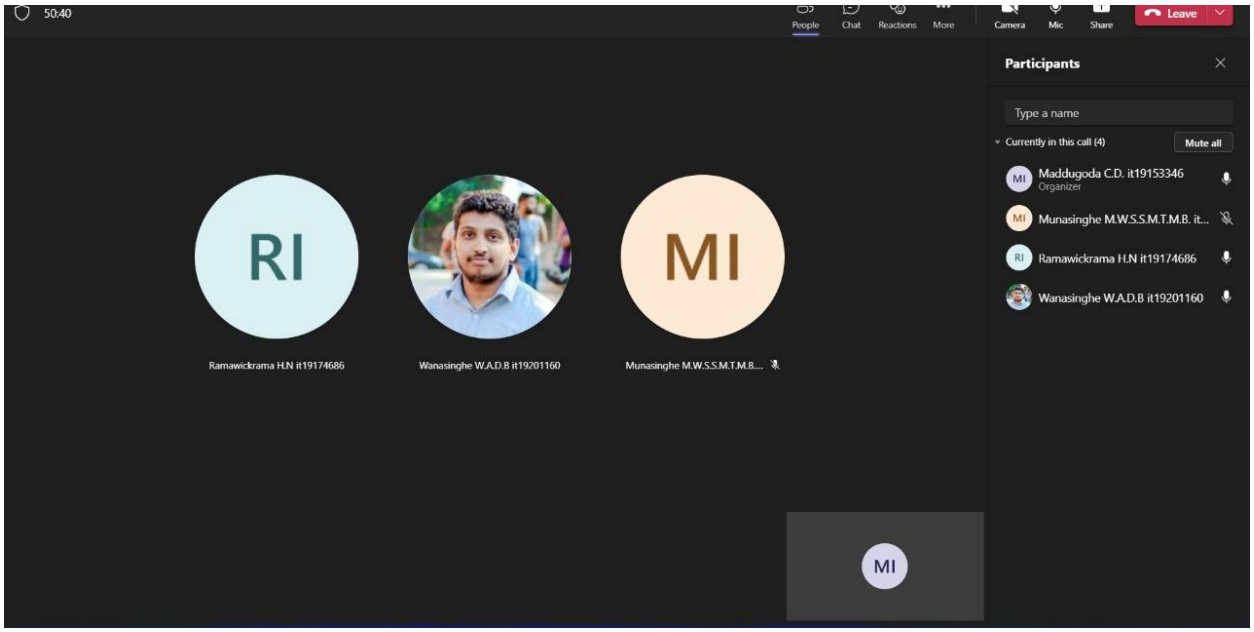

Figure 7: Discussion 7

- Discussion on model optimization ,issues faced , plan for PP1

WEEK 12 – MARCH 28 TO APRIL 3

- Trained models for static signs
- Researched on APIs to set backend to Frontend connection

WEEK 13 – APRIL 4 TO APRIL 10

- Visited Rathmalana School for Deaf to confirm knowledge on sign language
- Updated the suggestions on the implementations

WEEK 14 – APRIL 11 TO APRIL 17

- Embedded Models and finalized the backend implementation for Progress Presentation 1
- Recorded the demo for supervisor Feedback.

Discussion

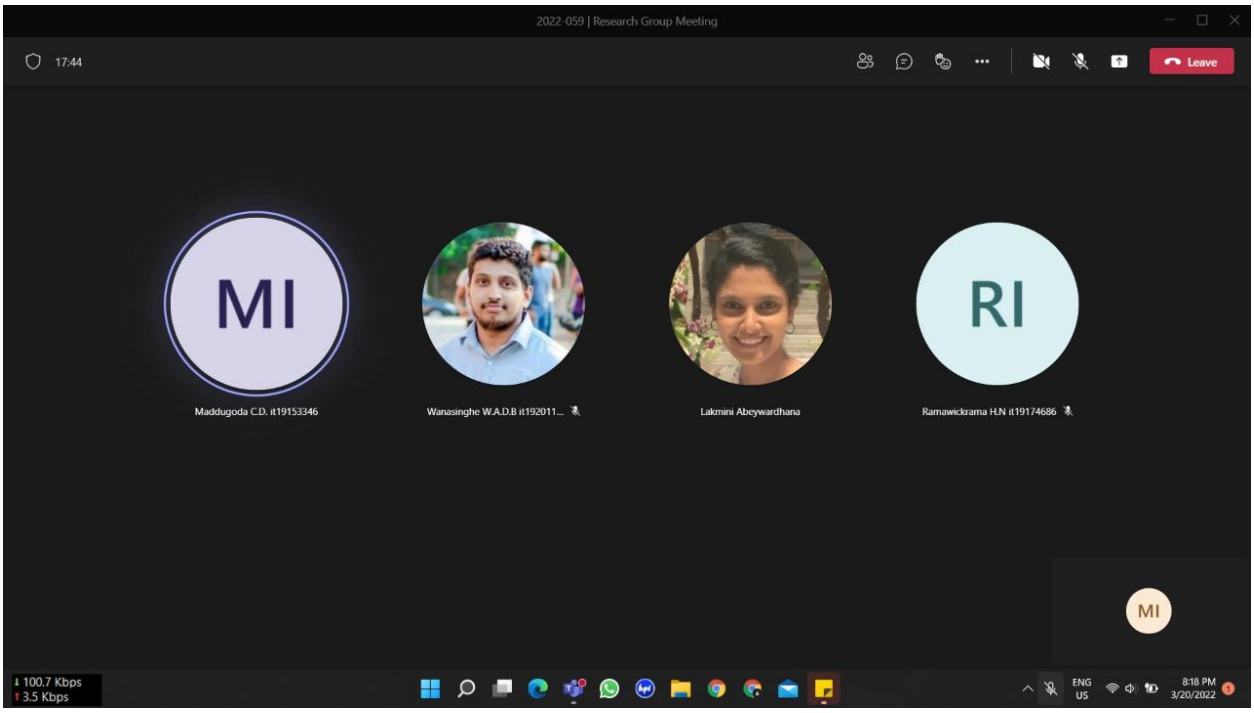

Figure 8: Discussion 8

- Discussion: supervisor feedback for pp1 demo

WEEK 15 – APRIL 18 TO APRIL 24

- Adjusted according to supervisor feedback
- Finalized the frontend design

WEEK 16 – APRIL 25 TO MAY 1

- Set Backend to frontend connection with flask ApI
- Handled errors

WEEK 17 – MAY 2 TO MAY 8

- Preparation for Progress Presentation 1
- Search for Alternative methods for Avatar Building

Discussion

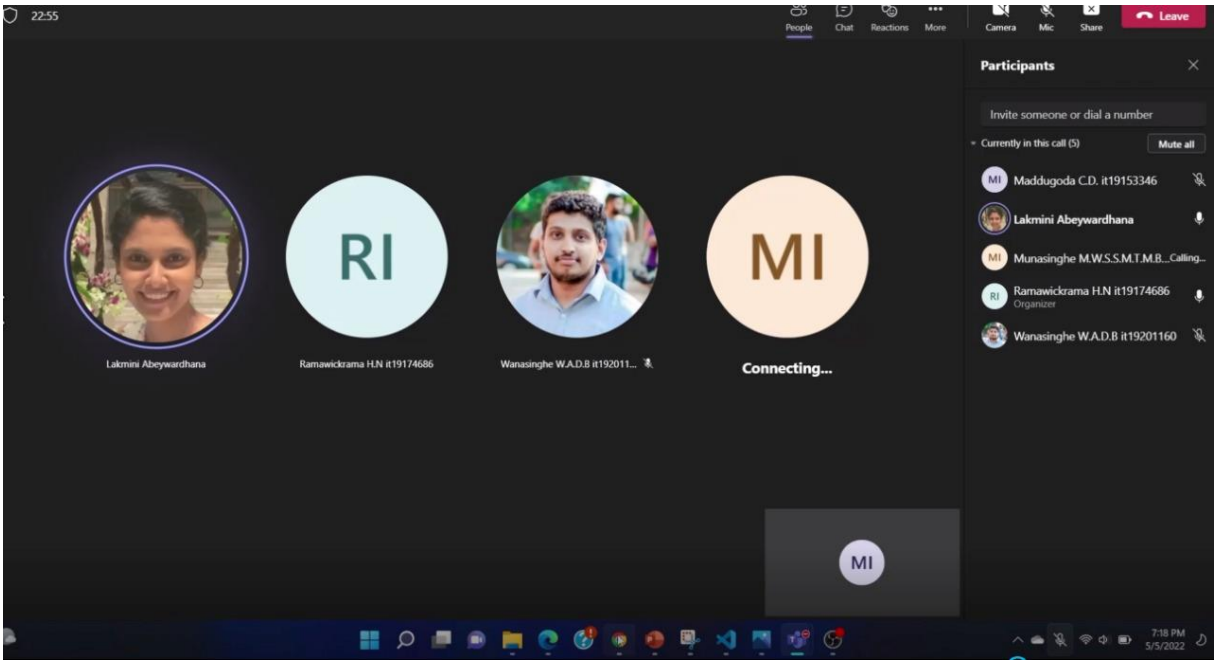

Figure 9: Discussion 9

- Discussion on possible improvements with supervisor

WEEK 18 – MAY 9 TO MAY 15

- Updated the implementation
- Finetuned the models
- Optimized the presentation time with group members

WEEK 19 – MAY 16 TO MAY 22

- Created Progress Presentation Slides
- Finalized the slides with Supervisor Feedback
- Created Status Document 1

WEEK 20 – MAY 23 TO MAY 29

- Presented Demo at Progress Presentation 1
- Submitted Status document 1.
- Started development for Progress presentation 2 with panel feedback

Discussion

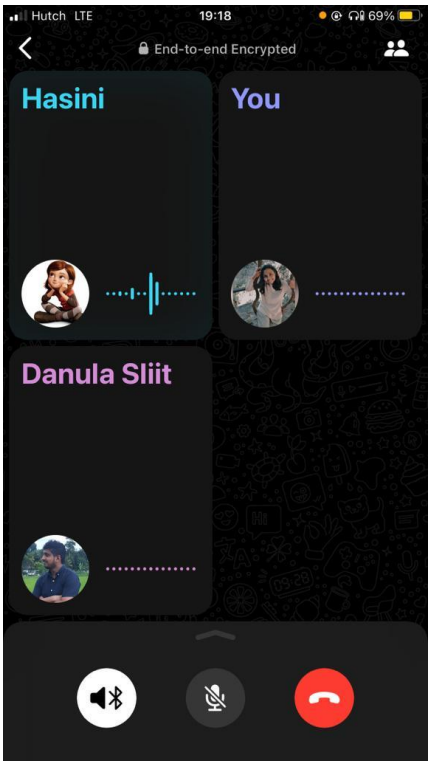

Figure 10 : Discussion 10

- Discussion on pp1 panel feedback and possible improvements with Group members

WEEK 21 – MAY 31 TO JUNE 5

- Visited Rathmalana School for Deaf for further knowledge on sign language
- Discussed the implementation progress with the team

WEEK 22 – JUNE 6 TO JUNE 12

- Restructured the component
- Tried to Develop page levels with reactJS
- Searched for the errors in implementation

WEEK 23 – JUNE 13 TO JUNE 19

- Researched on alterative solutions for ReactJS since submission of tenserflow output threw an error
- Figured the error cannot be fixed since it is due to ReactJs not supporting the current requirement

Discussion

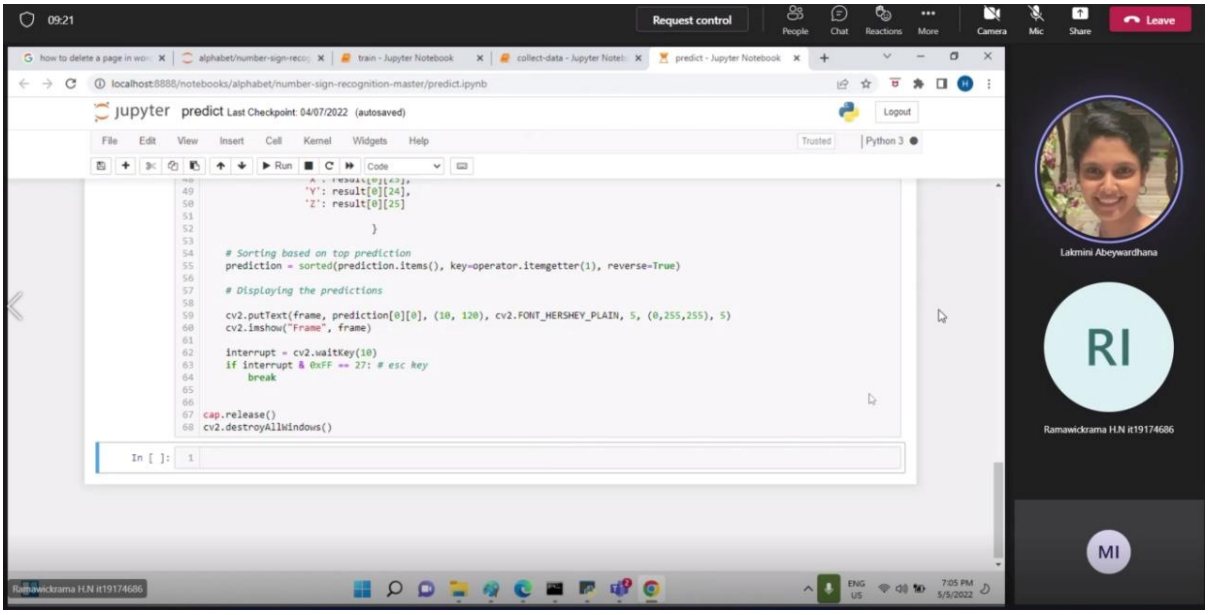

Figure 11 : Discussion 11

- Discussion: Supervisor Feedback on implementation.

WEEK 24 – JUNE 20 TO JUNE 26

No Research work Due to Final Exams

WEEK 25 – JUNE 27 TO JULY 3

- Started building Comparison algorithm with python
- Switched the backend development to Flask

Discussion

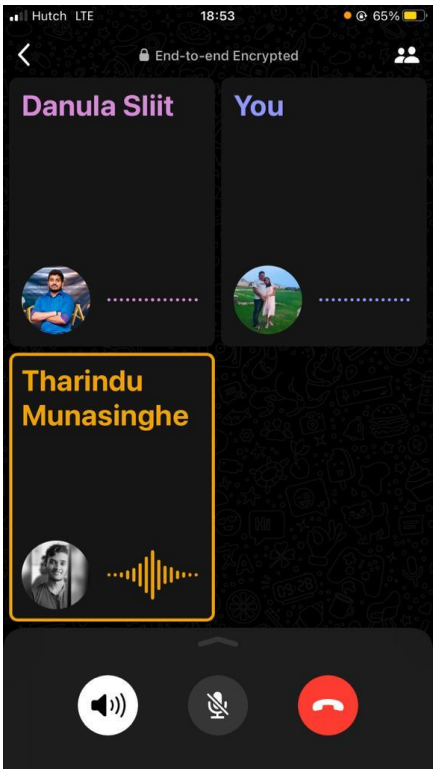

Figure 12 : Discussion 12

- Discussion on Current Progress and errors

WEEK 26 – JULY 4 TO JULY 10

- Started building models for more dynamic signs
- Optimized models
- Started working on Research paper

WEEK 27 – JULY 11 TO JULY 17

- Worked on Research Project
- Studied Overleaf syntax for research paper creation
- Research paper submission for CDAP

Discussion

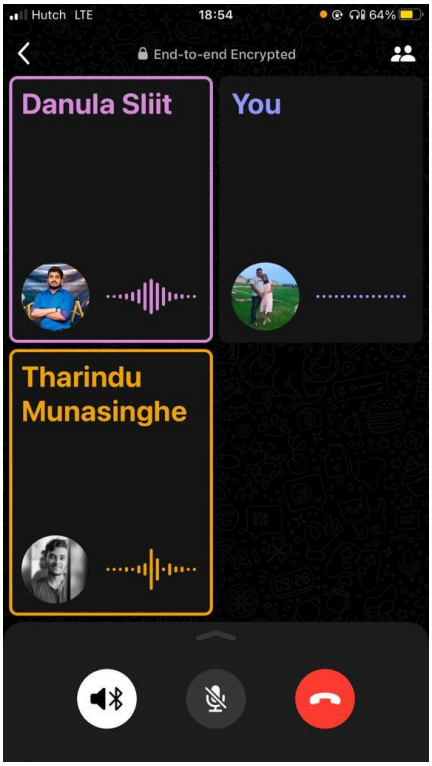

Figure 13 : Discussion 13

- Discussion on Research paper finalization

WEEK 28 – JULY 18 TO JULY 24

- Optimized the Comparison Algorithm for Static Signs
- Received supervisor Feedback

WEEK 29 – JULY 25 TO JULY 31

- Implementation for Comparison Algorithm for Simple Dynamic Signs
- Optimized the Algorithm

Discussion

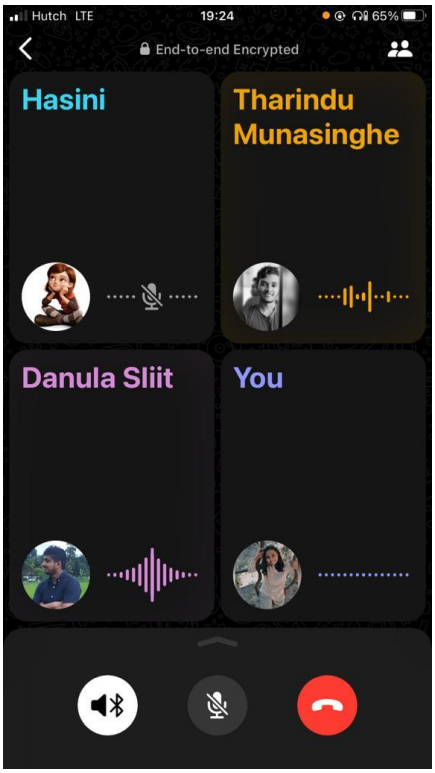

Figure 14 : Discussion 14

- Discussion on implementation Progress

WEEK 30 – AUGUST 1 TO AUGUST 7

- Implementation for Comparison Algorithm for Advanced Dynamic Signs
- Optimized the Algorithm

WEEK 31 – AUGUST 8 TO AUGUST 14

- Started Avatar Model Building for Static Signs
- Started working on Research paper for ICAC 2022

WEEK 32 – AUGUST 15 TO AUGUST 21

- Performed unit Tested
- Started Writing Final Draft Report

Discussion

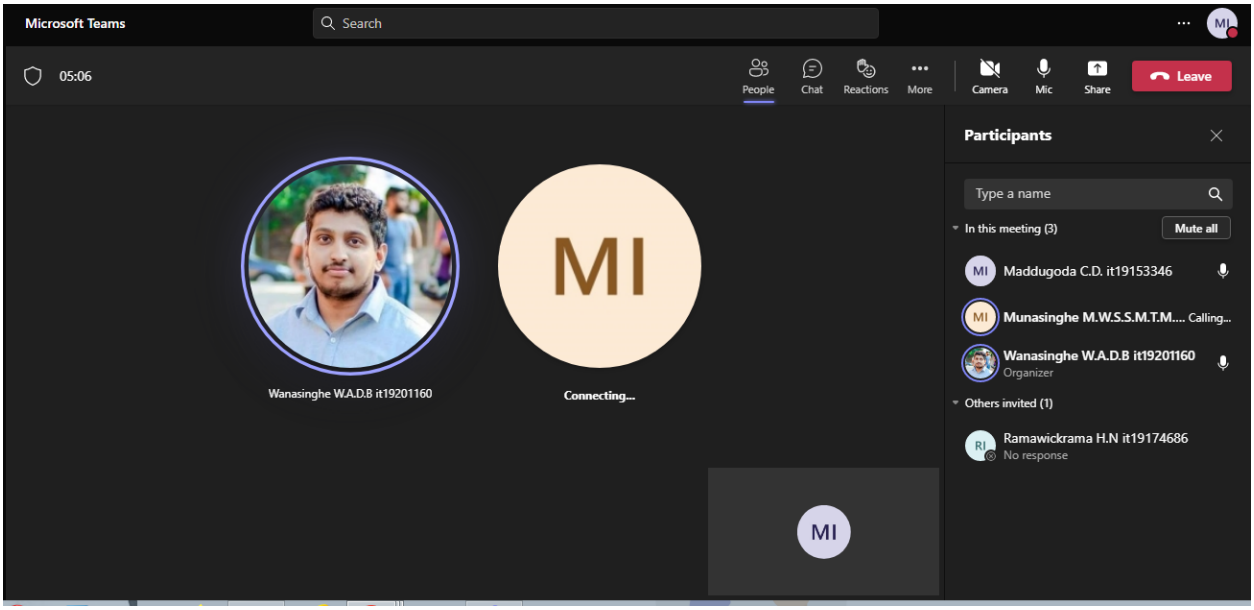

Figure 15 : Discussion 15

- Discussion on Research paper modifications

WEEK 33 – AUGUST 22 TO AUGUST 28

- Finalized Research paper for ICAC 2022
- Submitted the paper adjusting according to the comments from the supervisor

Discussion

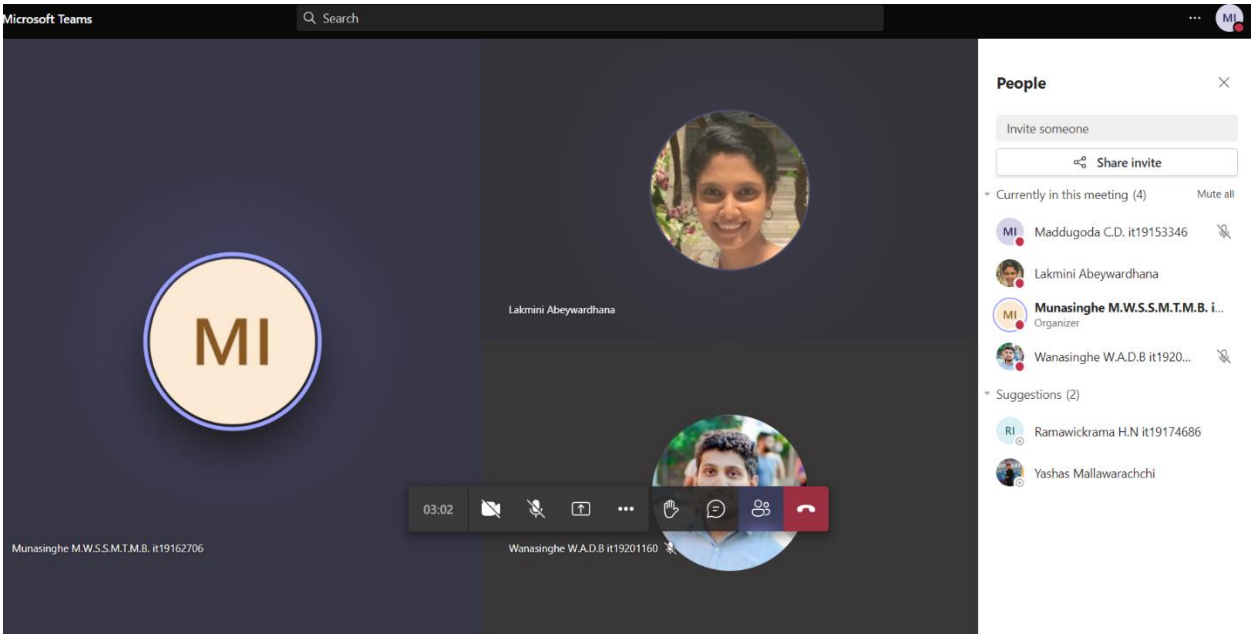

Figure 16 : Discussion 16

WEEK 34 – AUGUST 29 TO SEPTEMBER 4

- Proceeded with Final Report Draft
- Started Avatar Model building for Simple Dynamic signs

WEEK 35 – SEPTEMBER 5 TO SEPTEMBER 11

- Submitted Draft Final Report
- Started Avatar Model Building for Advanced Dynamic Signs

WEEK 36 – SEPTEMBER 12 TO SEPTEMBER 18

- Continued Avatar model Building
- Embedded the Avatar Models to the Frontend

WEEK 37 – SEPTEMBER 19 TO SEPTEMBER 25

- Finalized the Frontend
- Integrated the system

Discussion

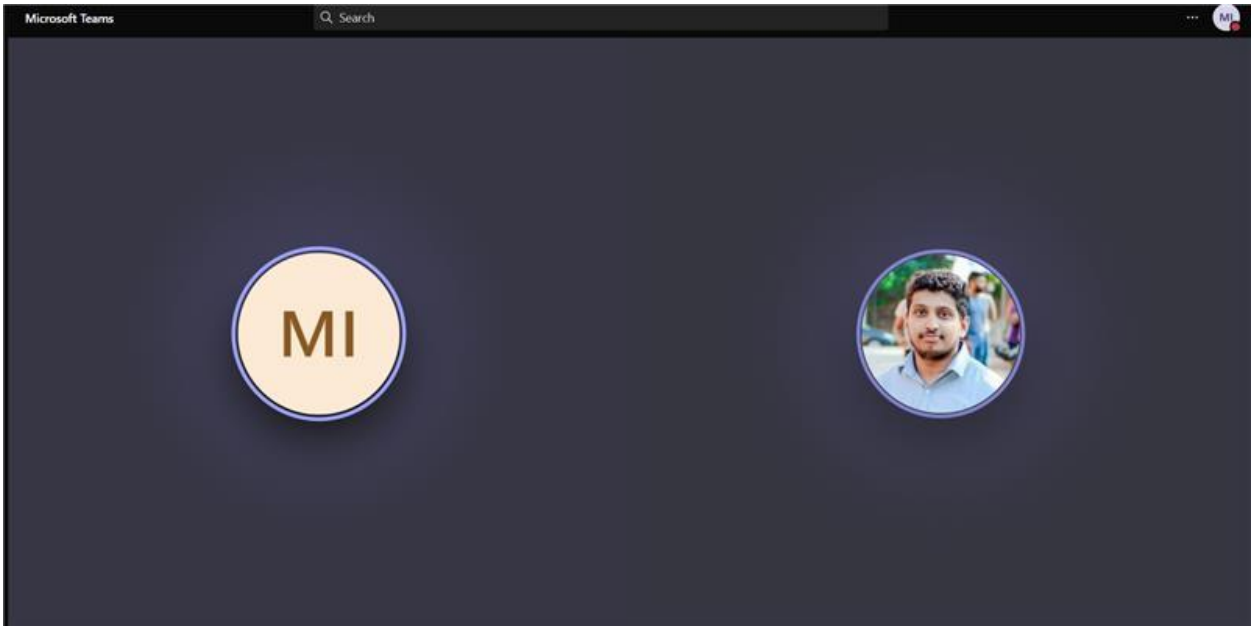

Figure 17 : Discussion 17

- Discussion on current progress with group leader.

WEEK 38 – SEPTEMBER 26 TO OCTOBER 2

- Completed Frontend and Backend with Avatars embedded and updated the system
- Applied Minor changes to the final report

WEEK 39 – OCTOBER 3 TO OCTOBER 9

No Research work Due to Mid Exam

WEEK 40 – OCTOBER 10 TO OCTOBER 16

- Prepared for PP2
- Presented and received positive feedback
- Started working on the suggestions

Discussion

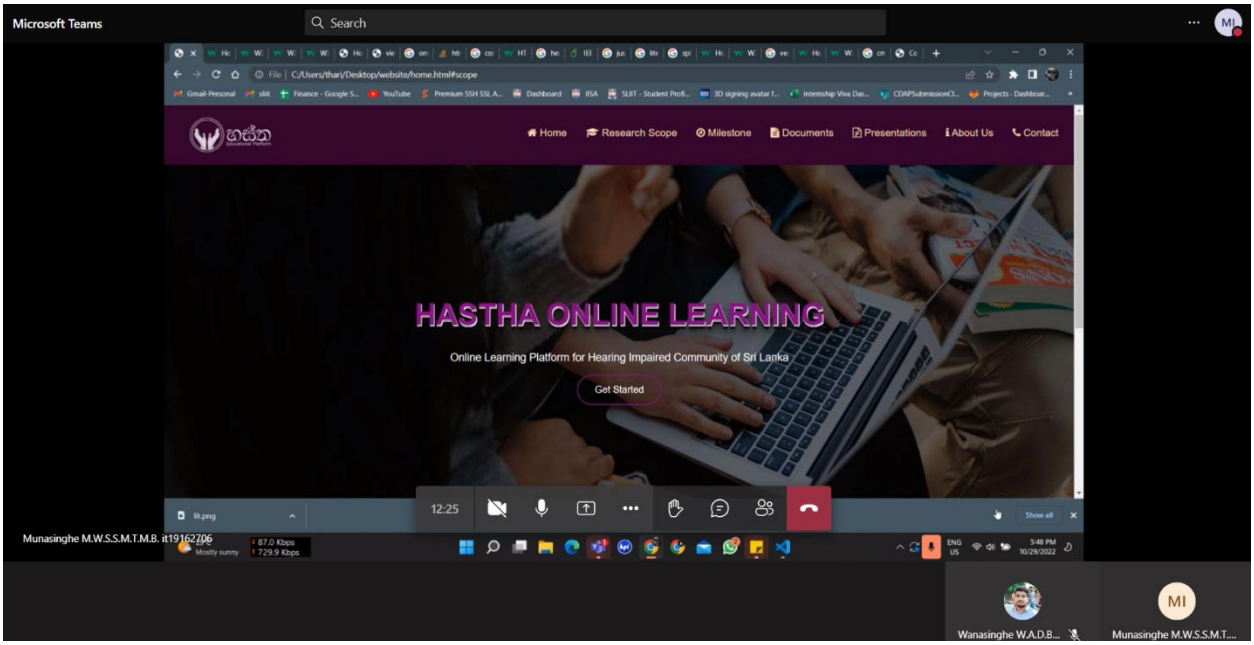

Figure 18 : Discussion 18

- Discussion on Web Application Interface finalization

WEEK 41 – OCTOBER 17 TO OCTOBER 23

- Rebuilt the Avatar model for static signs with better background
- Rebuilt the Avatar models with Simple Dynamic signs with better background

WEEK 42 – OCTOBER 24 TO OCTOBER 30

- Rebuilt the Avatar models with Advanced Dynamic signs with better background
- Retrained model for Color signs for better accuracy

Discussion

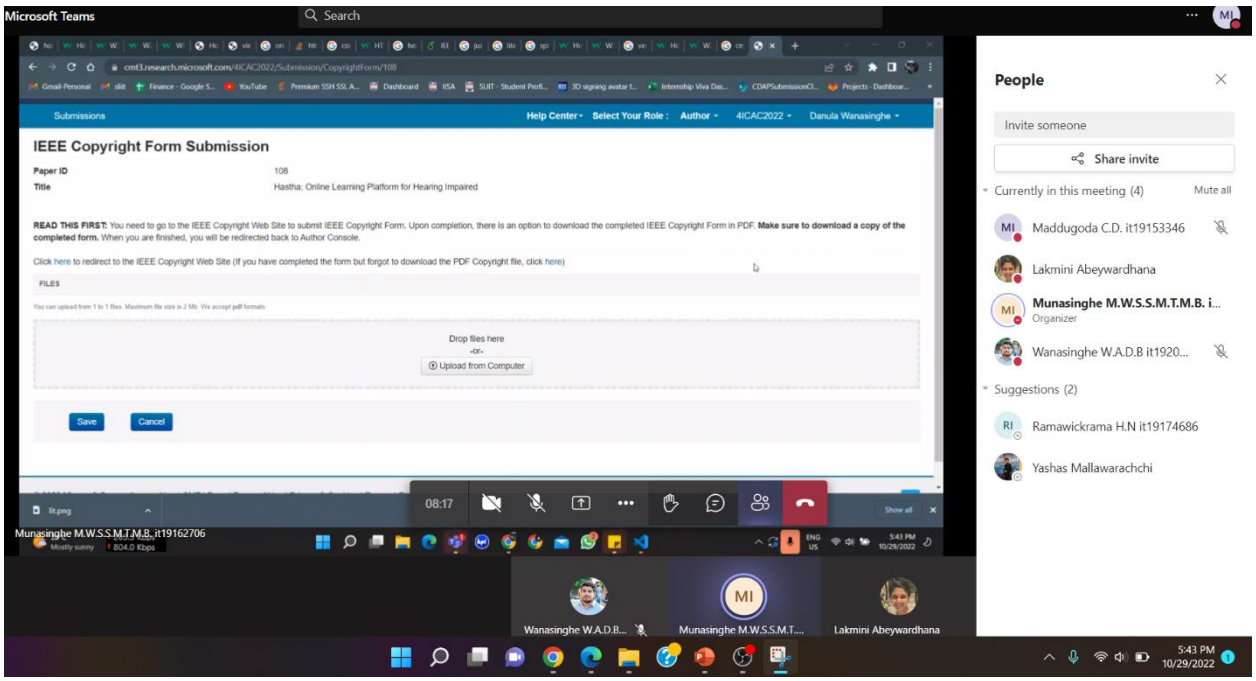

Figure 19 : Discussion 19

- Discussion on ICAC submission with supervisor

WEEK 43 – OCTOBER 31 TO NOVEMBER 6

- Received Acceptance notification for ICTer 2022
- Applied the changes suggested for the ICTer Research paper
- Withdrew from ICAC 2022

WEEK 44 -NOVEMBER 7 TO NOVEMBER 13

- Prepared Presentation slides for Final Presentation
- Prepared for Final presentation.
- Applied the changes to the integrated system

Discussion

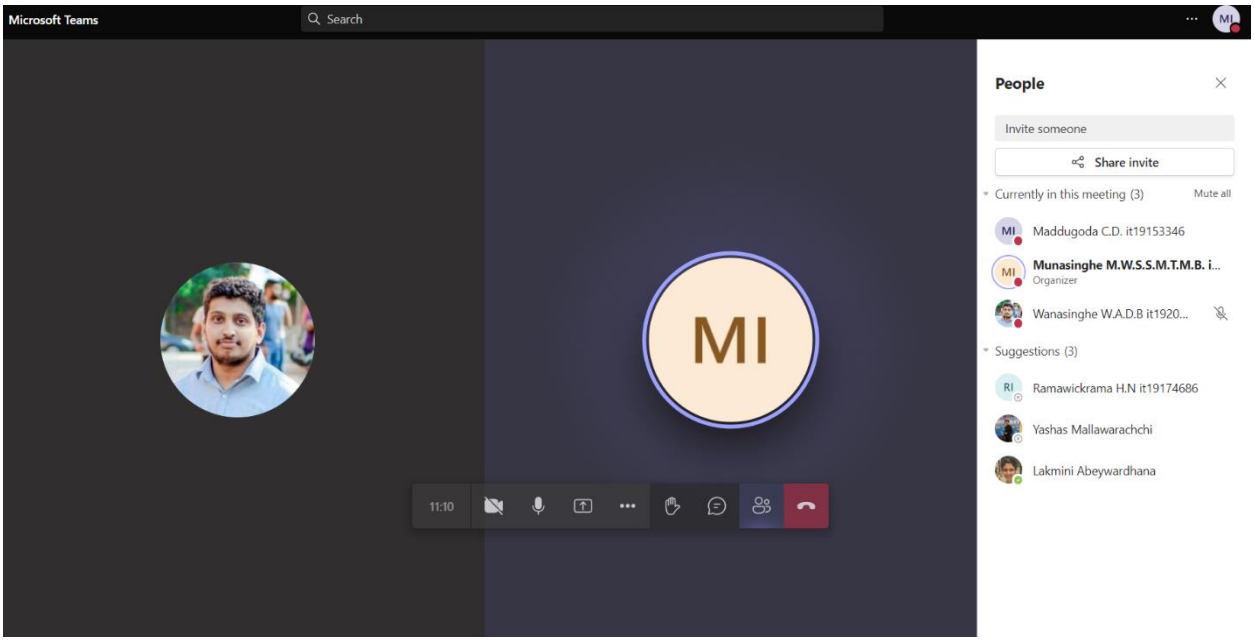

Figure 20 : Discussion 20

- Final Discussion on the integrated system

WEEK 45 – NOVEMBER 14 TO NOVEMBER 20

- Final Presentation and Viva.