

Interactive, visual learning-based tool for hearing impaired children to improve language skills.

22-23-J-18

IT19954974

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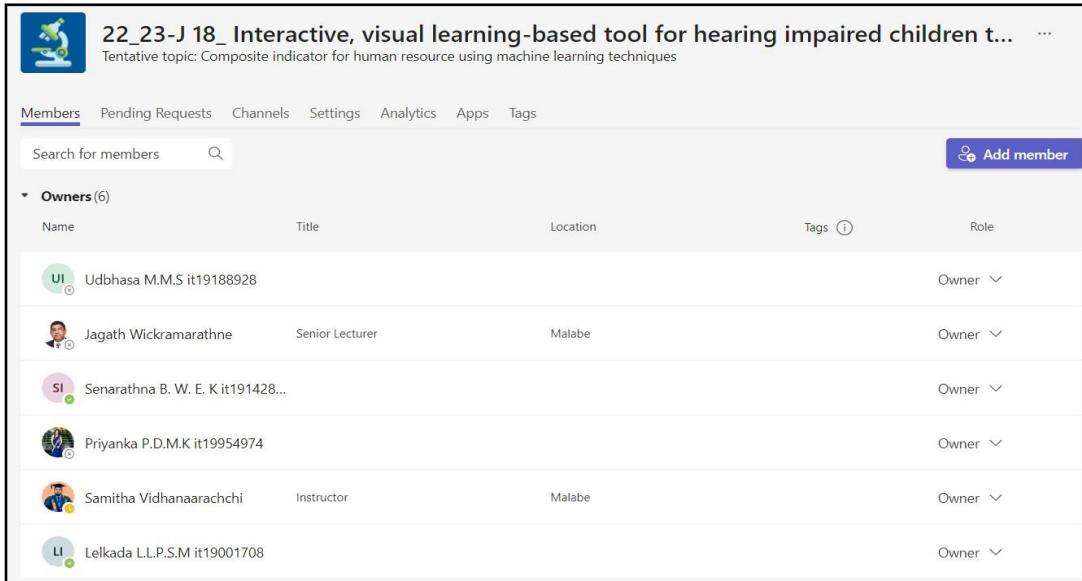
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1. Teams maintained in MS Teams

Two separate teams were maintained in MS Teams for communication purposes. One for the communication with supervisor and co-supervisor and the other for the daily/weekly sync up among team members.

i. Team + Supervisors + Co-Supervisor

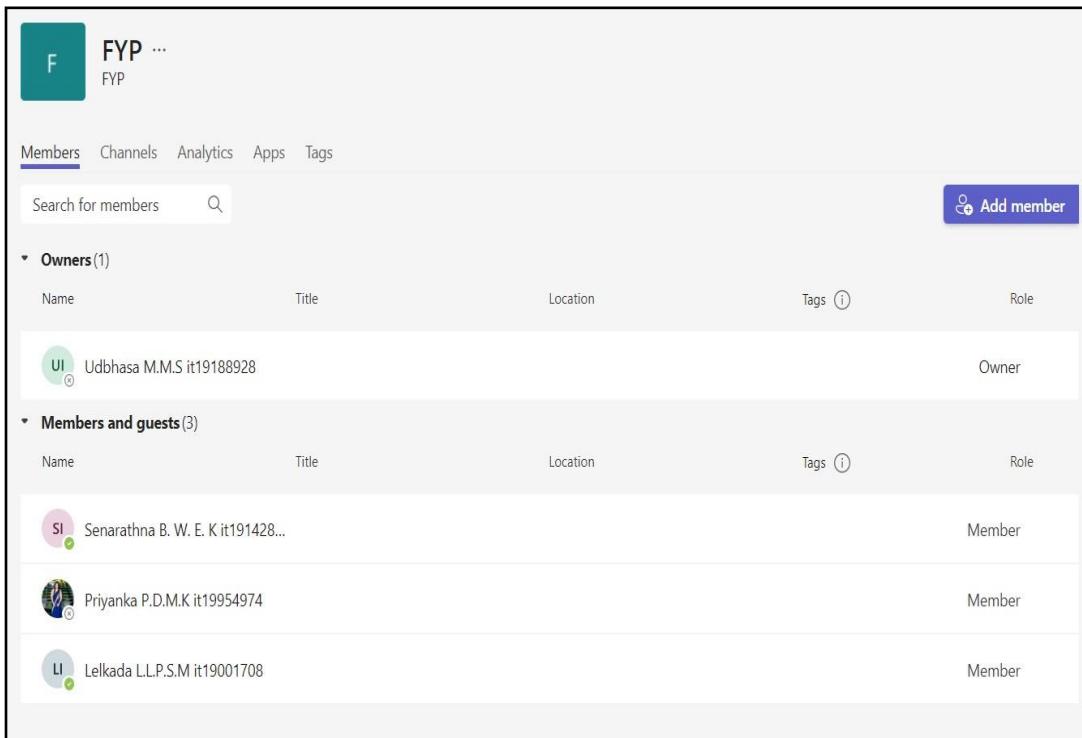


The screenshot shows the 'Members' tab of a Microsoft Teams team named '22_23-J 18_ Interactive, visual learning-based tool for hearing impaired children t...'. The team has 6 owners listed:

Name	Title	Location	Tags	Role
Udbhasa M.M.S it19188928				Owner
Jagath Wickramarathne	Senior Lecturer	Malabe		Owner
Senarathna B. W. E. K it191428...				Owner
Priyanka P.D.M.K it19954974				Owner
Samitha Vidhanaarachchi	Instructor	Malabe		Owner
Lelkada LL.P.S.M it19001708				Owner

Figure 1.1 Team 1

ii. Team



The screenshot shows the 'Members' tab of a Microsoft Teams team named 'FYP ...'. The team has 1 owner and 3 members/guests listed:

Name	Title	Location	Tags	Role
Udbhasa M.M.S it19188928				Owner
Senarathna B. W. E. K it191428...				Member
Priyanka P.D.M.K it19954974				Member
Lelkada LL.P.S.M it19001708				Member

Figure 1.2 Team 2

2. Screenshots of the chats in MS Teams

The screenshot shows a Microsoft Teams chat interface in the 'General' channel. At the top, there are tabs for 'General', 'Posts', 'Files', 'Task Planner', 'Work plan', and a '+' button. On the right side of the header are buttons for 'Meet', a dropdown menu, and three dots for more options. Below the header, a message from 'Senarathna B. W. E. K it19142838' at 6/8/2022 1:00 PM is shown, containing a link to an 'Activity log & Individual Progress Tracker.xlsx' file. This message has 3 likes. A reply from 'Samitha Vidhanaarachchi' at 6/8/2022 2:52 PM follows, stating: 'I have also created a folder for "Log Book" which you will need to submit later. It would be easy if you maintain that document from now onwards. Pls create separate documents using that template and start recording what you have done throughout the research.' This reply has 2 hearts. Below this, the date 'Thursday, June 16, 2022' is displayed. Another message from 'Samitha Vidhanaarachchi' at 6/16/2022 10:26 PM adds a new tab to the channel, providing a link. This message includes a 'Task Planner' icon.

Figure 2.1 Chat Screenshot-1

This screenshot shows a summary of a meeting in the 'General' channel. It begins with a message from 'Udbhasa M.M.S it19188928' at 7/14/2022 1:15 AM, listing three bullet points: 'Object detection', 'Applications', and 'Lip reading and audio processing'. Below this, a message from 'Lelkada L.L.P.S.M it19001708' at 7/14/2022 2:15 AM discusses an interactive visual learning tool, mentioning its purpose to improve language acquisition and proficiency through visual materials. It notes that the tool will adapt to the child's level of understanding. A 'See more' link is provided. Further down, another message from 'Lelkada L.L.P.S.M it19001708' at 7/14/2022 2:51 AM cites a study by Hall, M., Hall, W. and Caselli, N. (2019) about deaf children needing language rather than just speech. The meeting summary concludes with a message indicating it ended at 5h 47m. At the bottom right, there are small profile icons for four users: UI, LI, SI, and a person with glasses.

Figure 2.2 Chat Screenshot-2

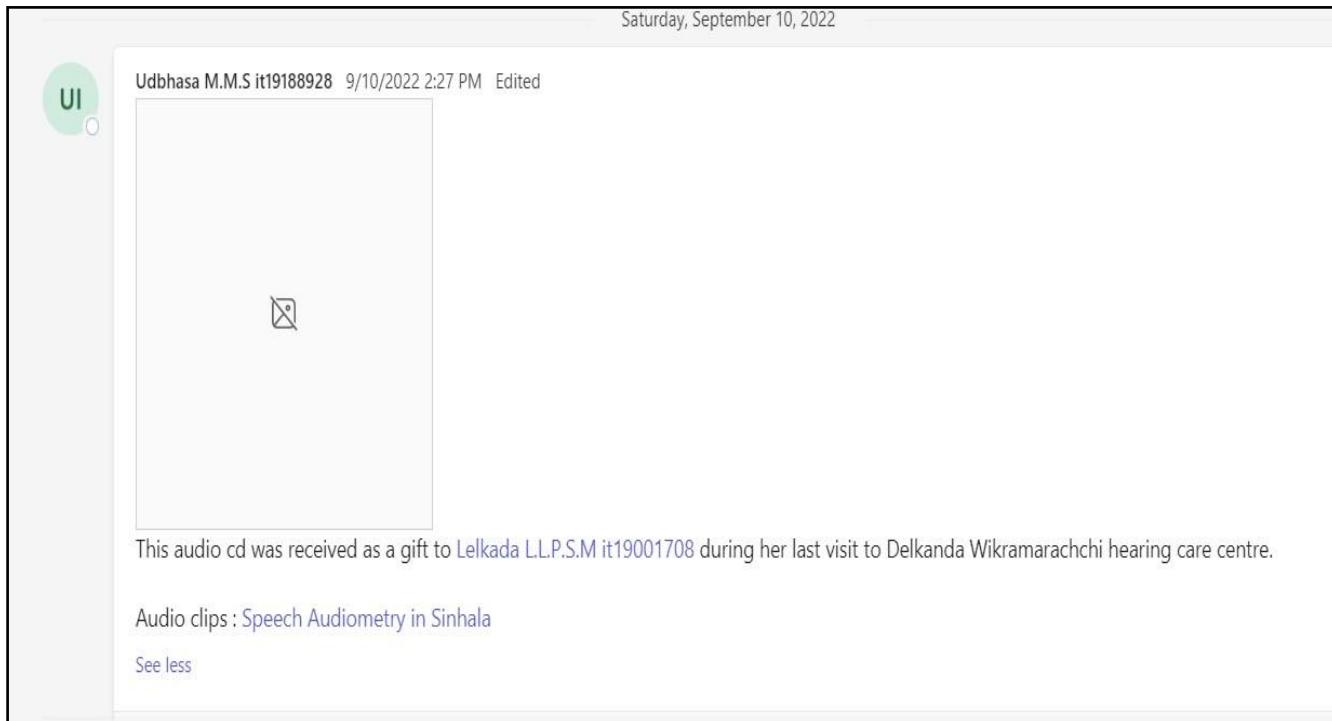


Figure 2.3 Chat Screenshot-3

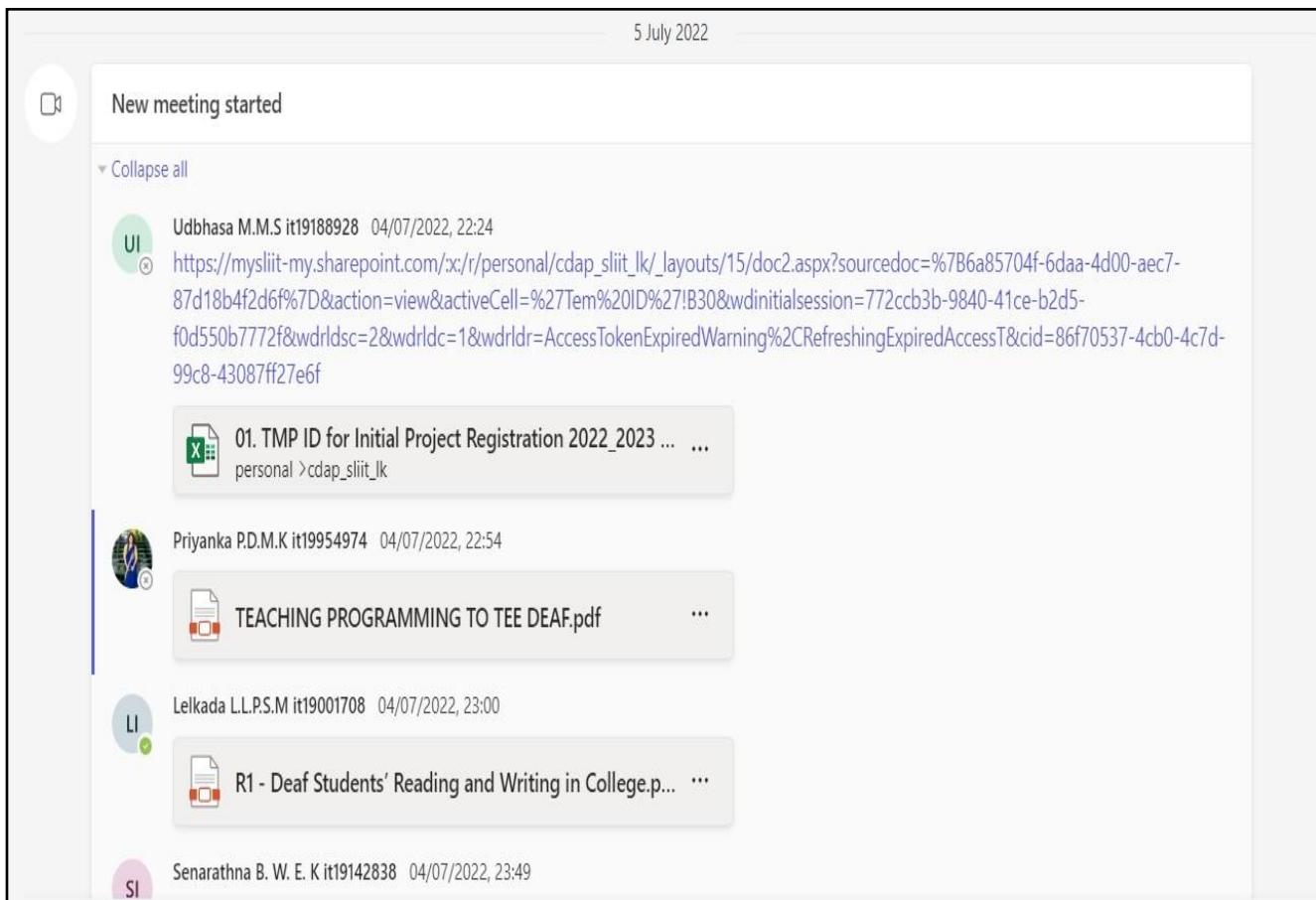


Figure 2.4 Chat Screenshot-4

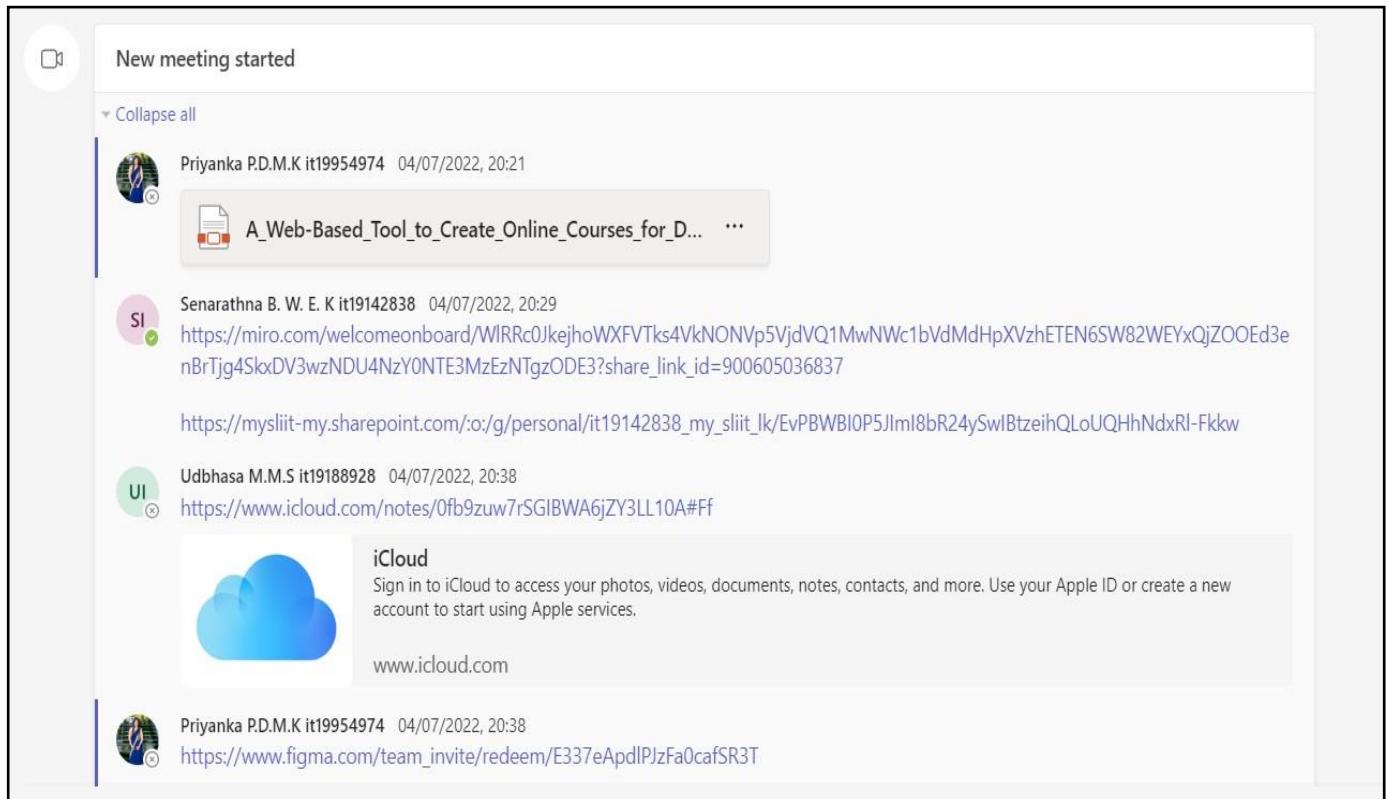


Figure 2.5 Chat Screenshot-5

28 May 2022

Meeting started

▼ Collapse all

SI Senarathna B. W. E. K it19142838 27/05/2022, 21:16
https://docs.google.com/document/d/1E-3bVFDKyW8YEAW44RrCVw6bxj-CeA5Lnd6xdP_w1EQ/edit?usp=sharing

Priyanka P.D.M.K it19954974 27/05/2022, 22:21
https://mysliit-my.sharepoint.com/:g/personal/cdap_sliit_lk/EVxmt2cWglFNn86-b8oeFUUBBKwdEmUCxCOJ2wNNqZRrHg?e=cfWxG7

SI Senarathna B. W. E. K it19142838 27/05/2022, 22:21
https://mysliit-my.sharepoint.com/:g/personal/cdap_sliit_lk/EVxmt2cWglFNn86-b8oeFUUBBKwdEmUCxCOJ2wNNqZRrHg?e=cfWxG7

FoC Research Groups.xlsx
personal >cdap_sliit_lk ...

SI Senarathna B. W. E. K it19142838 27/05/2022, 22:48
Research Proposal.docx

Research Proposal.docx
personal >it19142838_my_sliit_lk ...

UI Udbhasa M.M.S it19188928 27/05/2022, 23:20
iCry2Talk proposes a low-cost and non-invasive intelligent interface between the infant and the parent that translates in real time the baby's cry and associates it with a specific physiological and psychological state, depicting the result in a text, image and voice message. The hypothesis adopted by iCry2Talk is that the efficient combination and analysis of different sources of information through advanced signal processing techniques and deep learning algorithms can provide meaningful and

Figure 2.6 Chat Screenshot-6

3. Screenshots of the Calls in MS Teams

Tuesday, July 5, 2022

Udbhasa M.M.S it19188928 7/4/2022 3:47 PM
Scheduled a meeting

RP June 2022-New : RP meeting with Saluka & the team
Tuesday, July 5, 2022 @ 11:00 AM

RP June 2022-New : RP meeting with Saluka & the team ended: 49m 36s

Reply

UI L S +1

Figure 3.1 Call Screenshot -1

Monday, January 9, 2023

Udbhasa M.M.S it19188928 1/9 2:28 PM
Scheduled a meeting

Hearing Disability RP-Jun22 Progress Check
Monday, January 9, 2023 @ 8:00 PM

Hearing Disability RP-Jun22 Progress Check ended: 1h 5m

Reply

G L S +1

Saturday, February 18, 2023

Last read

Lelkada L.L.P.S.M it19001708 2/18 9:58 PM
Scheduled a meeting

Research Paper Writing
Saturday, February 18, 2023 @ 10:00 PM

Meeting in "General" ended: 1h 5m

Reply

LI U S +1

Friday, April 28, 2023

Meeting in "General" ended: 7m 51s

Reply

U

Figure 3.2 Teams Calls 1

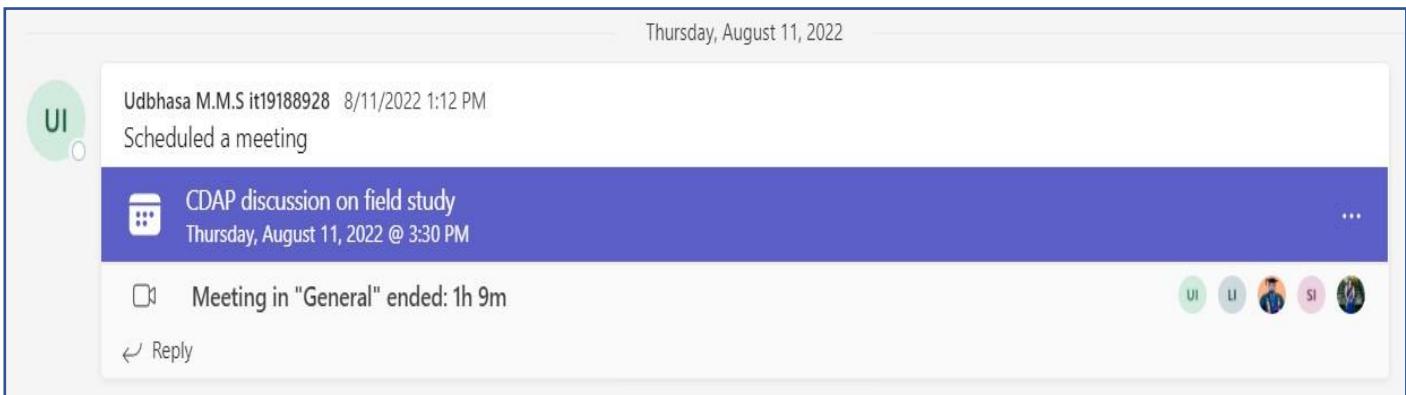


Figure 3.3 Call Screenshot -2

This screenshot shows a Microsoft Teams channel feed for the "General" channel. It displays several meeting logs:

- A meeting ended at "2h 39m" on Tuesday, November 1, 2022, with participants "SI", "U", "P", "G", and "UI".
- A meeting started on Tuesday, November 1, 2022.
- A meeting ended at "27s" on Tuesday, November 1, 2022.
- A meeting ended at "6m 48s" on Tuesday, November 1, 2022, with participants "U" and "UI".
- A new channel meeting ended at "37m 38s" on Wednesday, November 2, 2022, with participants "U", "L", "G", and "SI".
- A meeting started on Wednesday, November 2, 2022, with "2 replies from Samitha".

The feed also shows a meeting on "Monday, January 9, 2023".

Figure 3.3 Call Screenshot -3

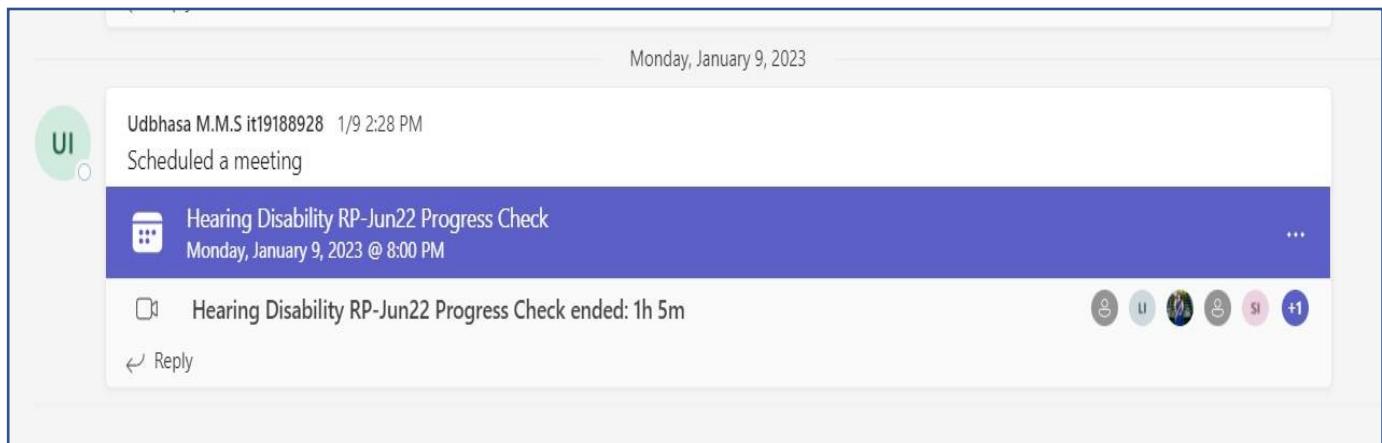


Figure 3.4 Call Screenshot -4

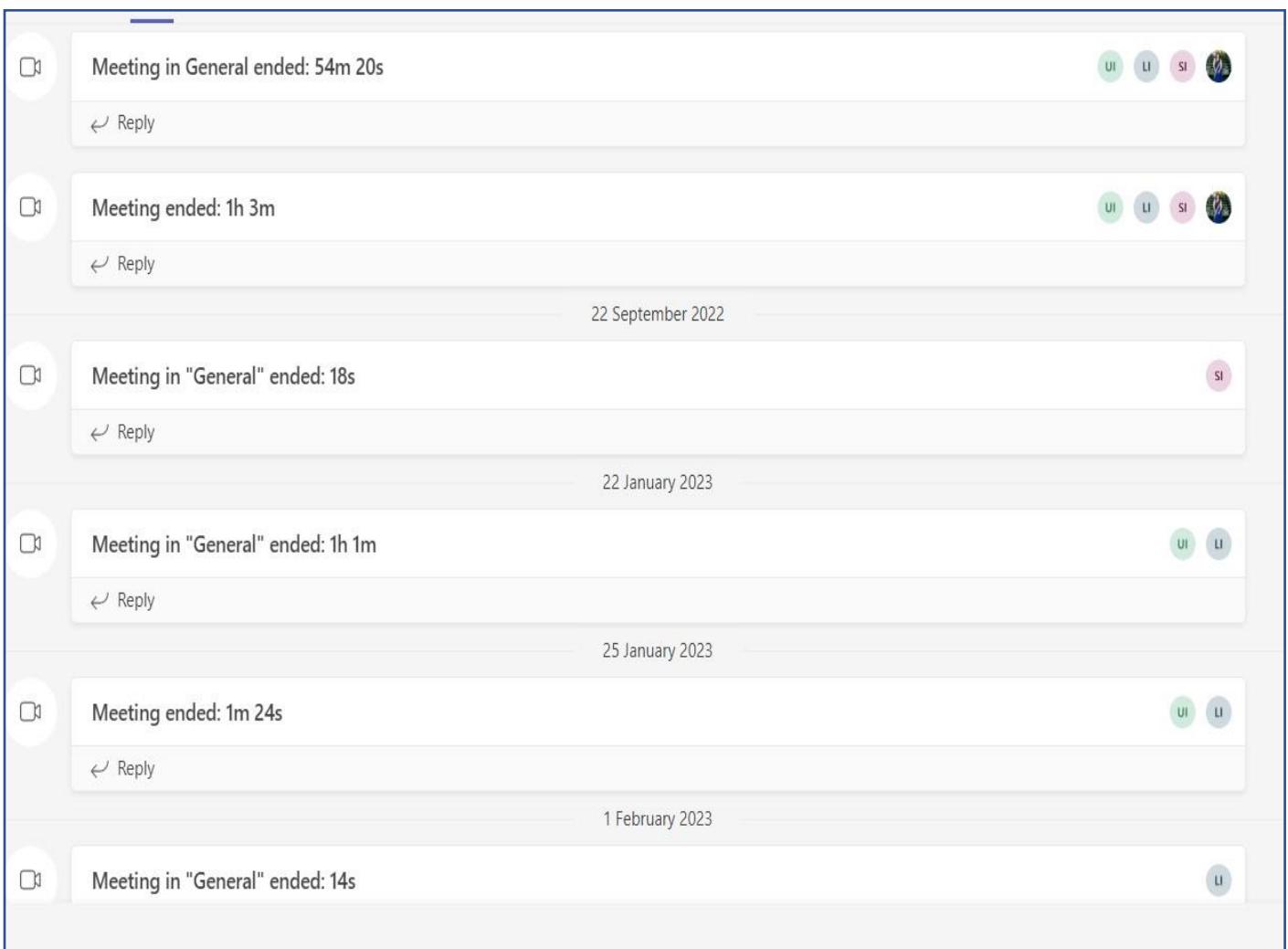


Figure 3.5 Call Screenshot -5

4. Groups in Whatsapp

As "Whatsapp was suggested as an easy communication method to communicate with each other 3 groups were formed there too.

i. Team with supervisor and co-supervisor

This team was primarily used to pass updates to supervisors and take quick calls to share progress.

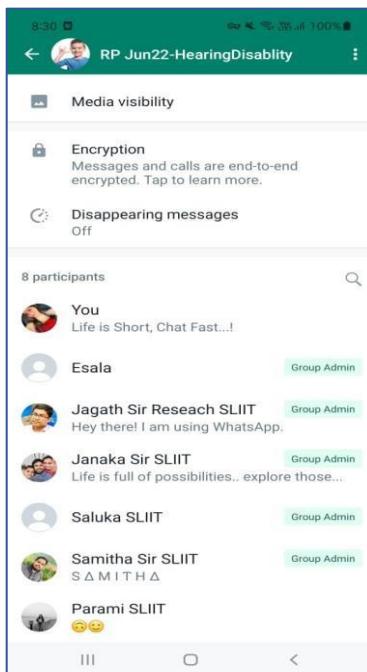


Figure 4.1 Whatsapp Group 1

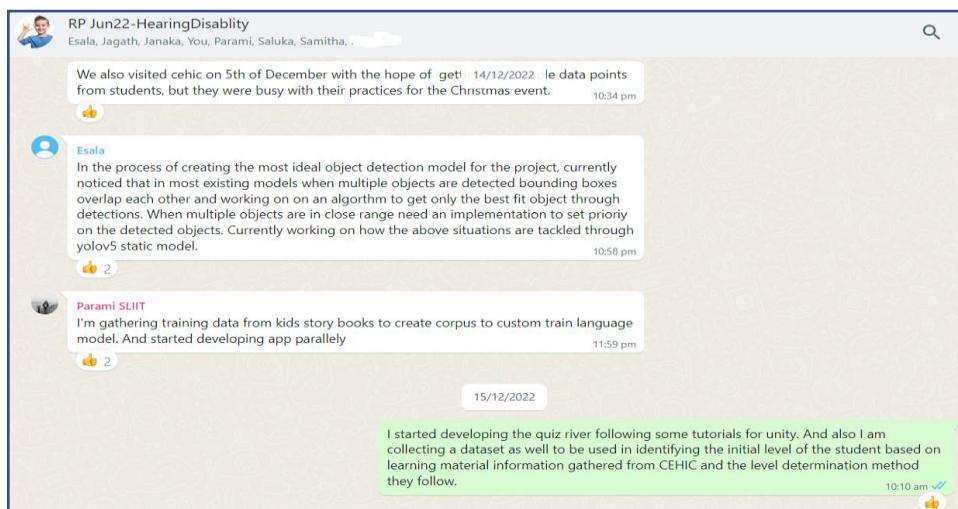


Figure 4.2 Whatsapp Group 1 Chat

ii. Groups with team members

This group was for all the members to share their thoughts and updates quickly with each other and stay in touch all the time.

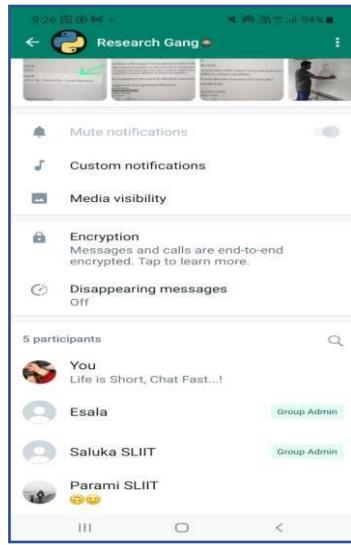


Figure 4.3 Whatsapp Group 2

iii. Group with all the other teams managed by co-supervisor.

This was managed to organize demo and practice sessions for all the teams to get ready for the presentations and it turned out to be really helpful in order to measure and evaluate our project's progress compared to other projects that are going on and to take an early feedback regarding our project in the perspective of other students.

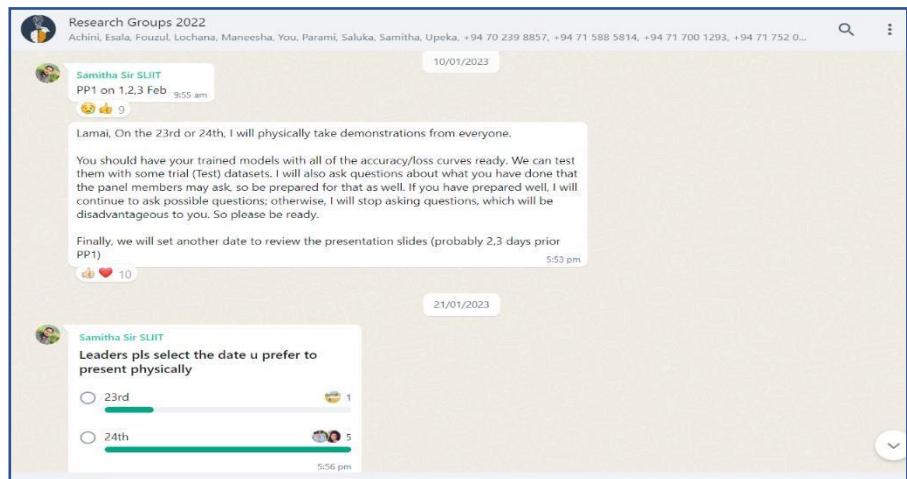
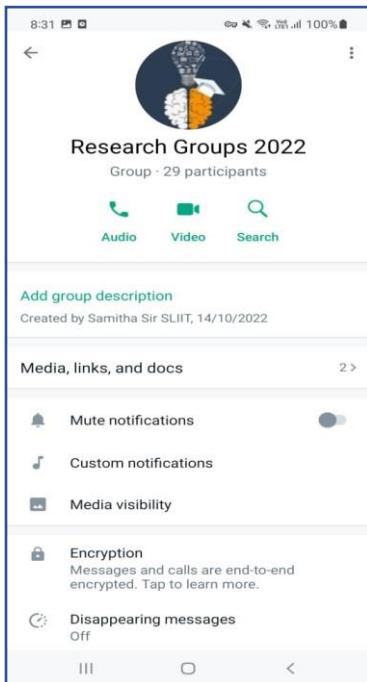


Figure 4.5 Whatsapp Group 3 Chat

Figure 4.4 Whatsapp Group 3

5. Physical Meetings

1. Among Group Members

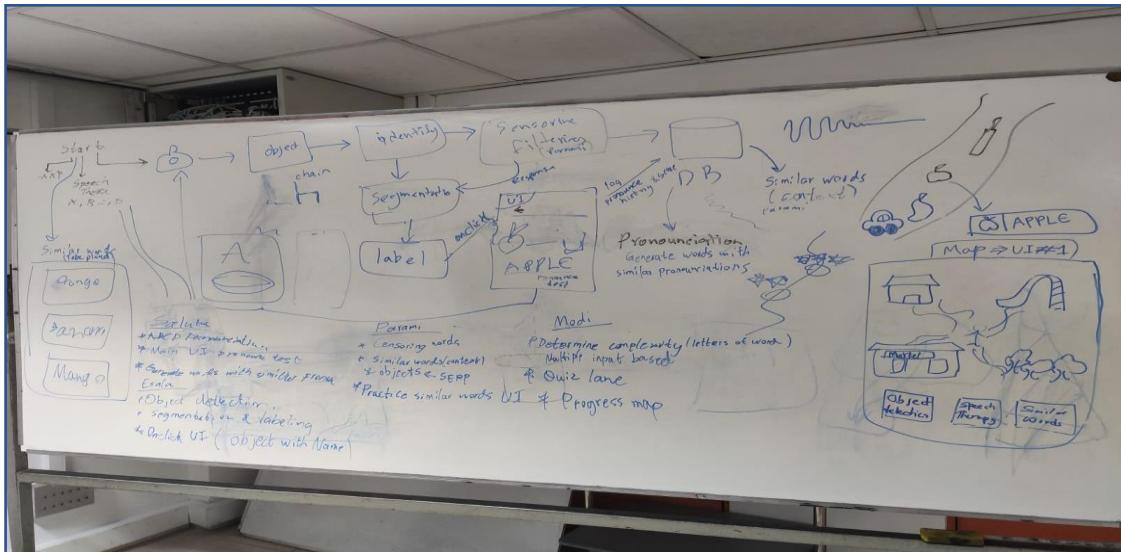


Figure 5.1 Brainstorming



Figure 5.2 Team



Figure 5.3 Team Meeting

2. Supervisor Meeting



Figure 5.4 Supervisor Meeting

6. Online Meetings and Demonstrations

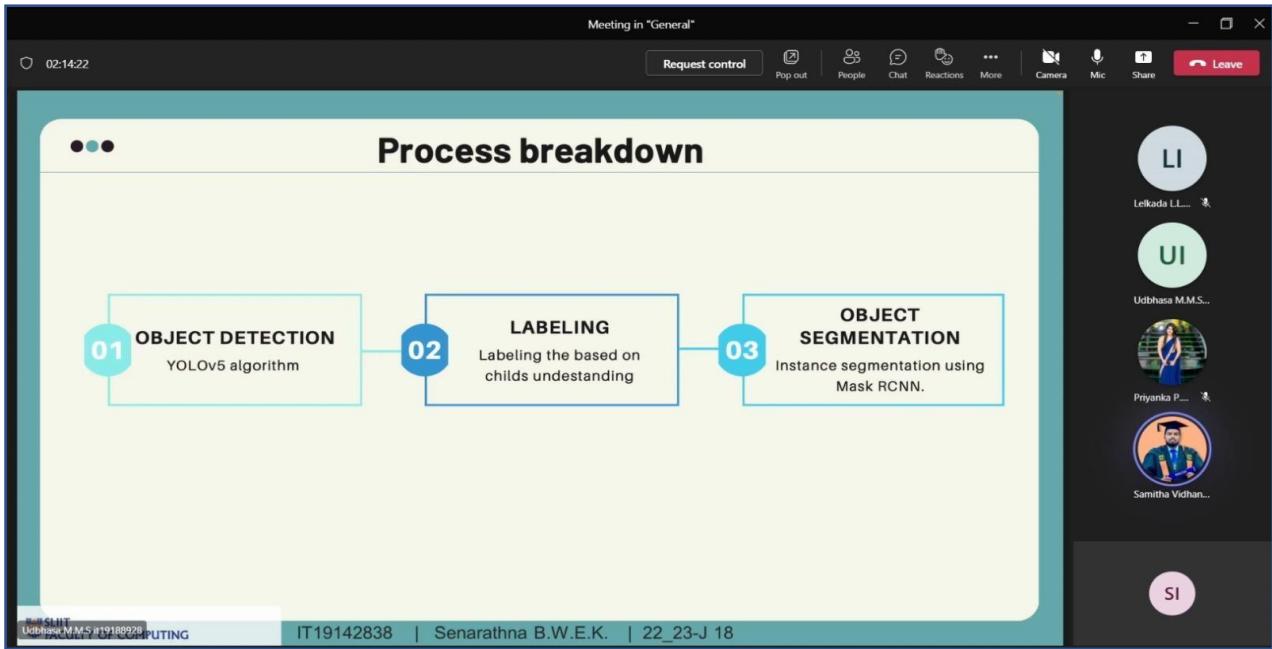


Figure 6.1 Demonstration 1

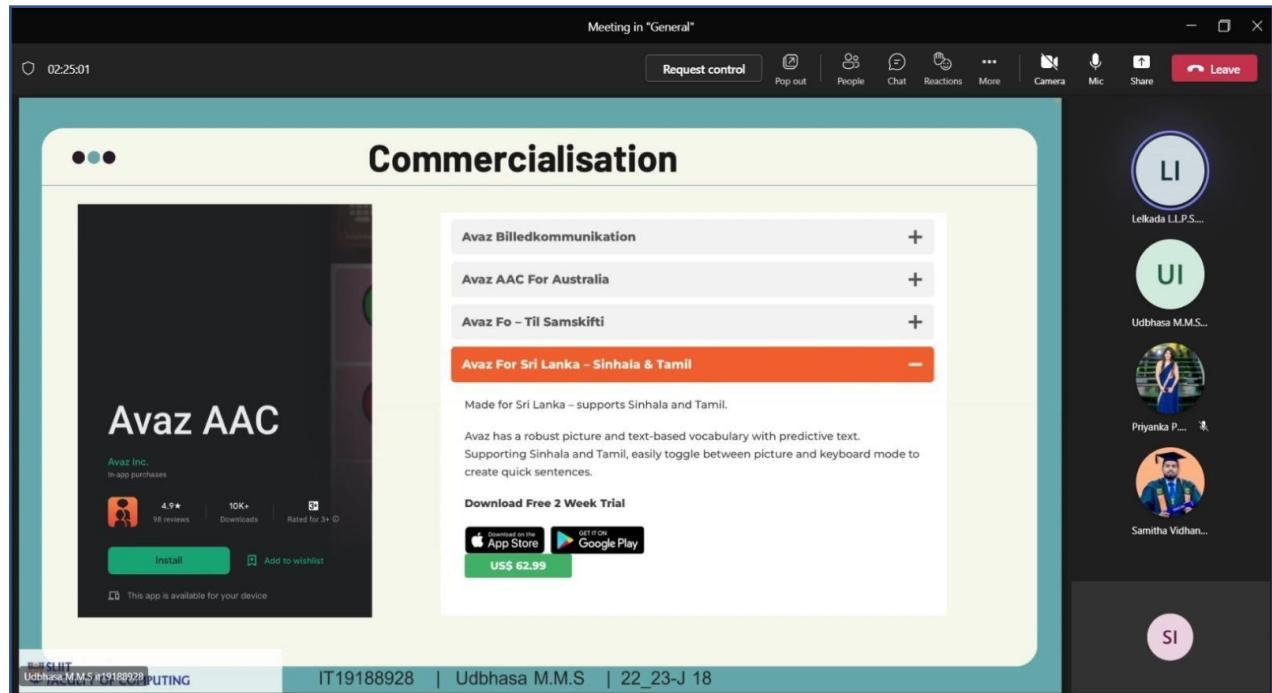


Figure 6.2 Demonstration 2

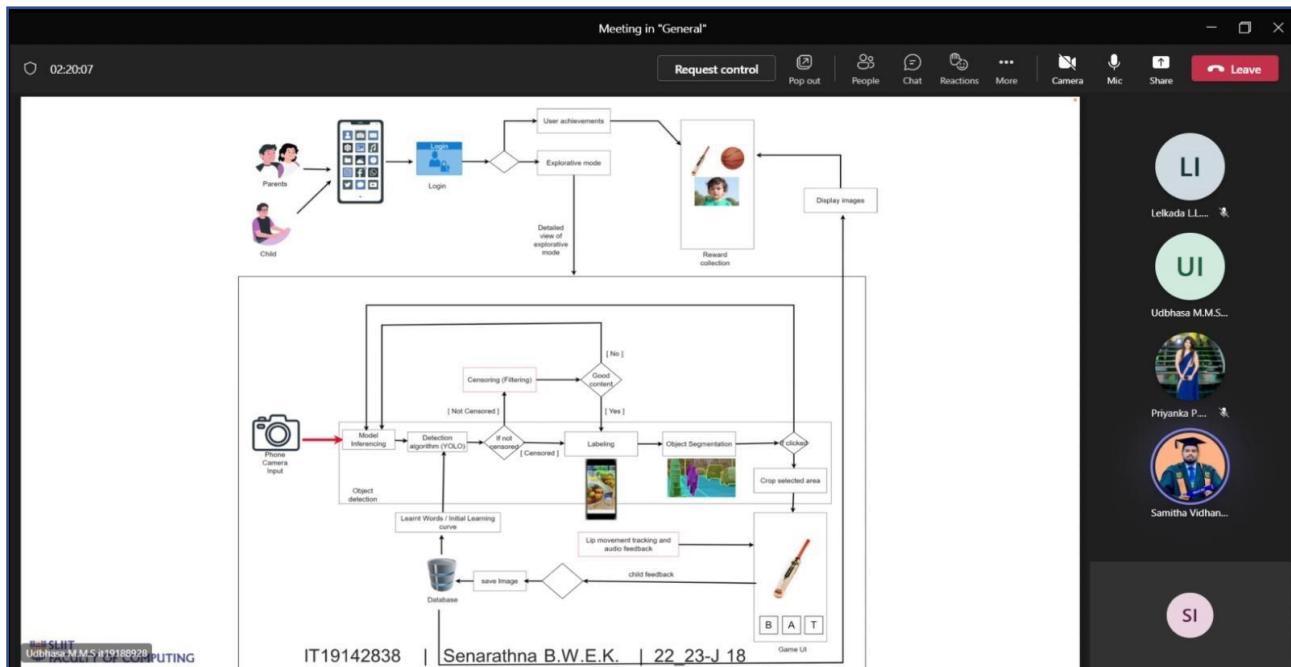


Figure 6.3 Diagram Demonstration

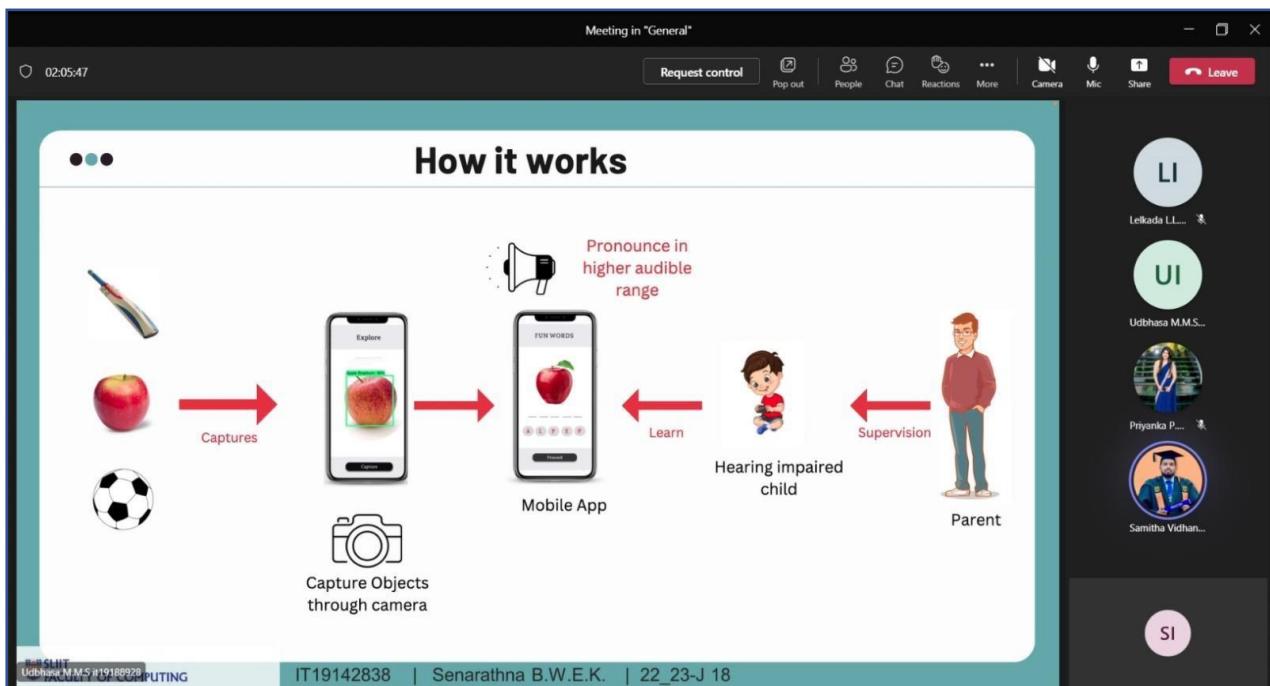


Figure 6.4 Online Meetings

7. Work Breakdown Structure

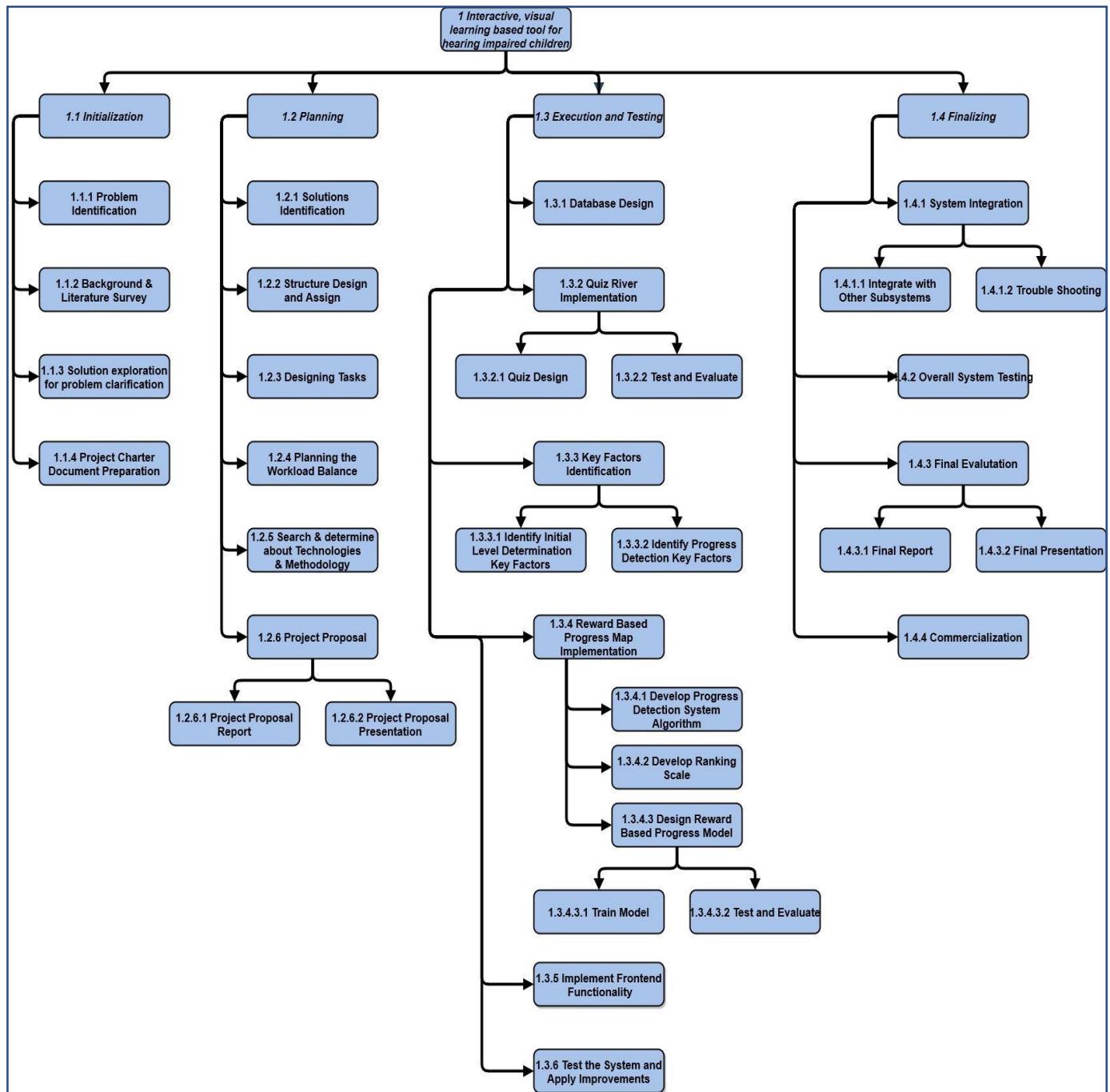


Figure 7.1 Work Breakdown Chart

8. Data Collection

8.1 Words for the Quiz

Collected the idea from CEHIC – Center for Education of Hearing Impaired Children and Collected English content for the quiz from Twinkle Stars pre school.



Figure 8.1 CEHIC



Figure 8.2 Twinkle Stars Pre School

8.2 Pictures Collection for Quiz



Figure 8.3 3 Letter Words

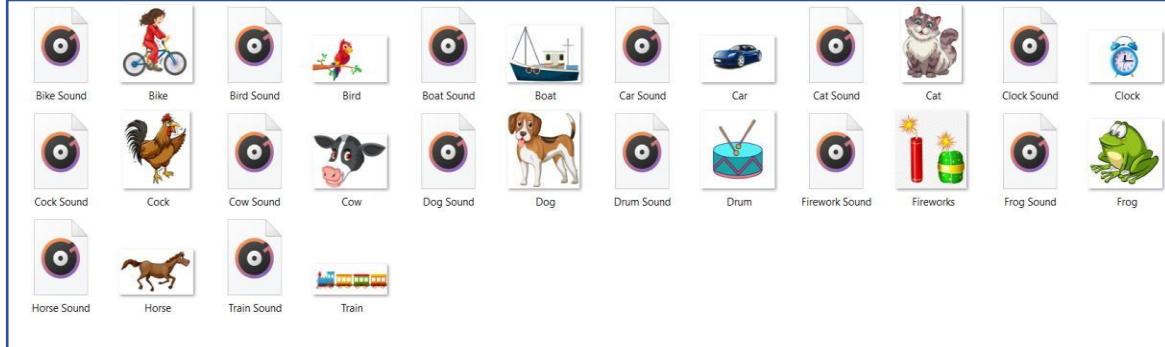
Figure 8.4 4 Letter Words



Figure 8.5 5 Letter Words



Figure 8.6 Sound pictures



8.3 Audio File Collection

This PC > Local Disk (C:) > Research > Gathered Data > Audio Clips

Name	Date modified	Type	Size
3 Letter	1/15/2023 11:22 PM	File folder	
4 Letter	1/15/2023 11:22 PM	File folder	
5 Letter	1/15/2023 11:23 PM	File folder	
Compound Words	1/15/2023 11:23 PM	File folder	

Figure 8.7 Audio File Collection

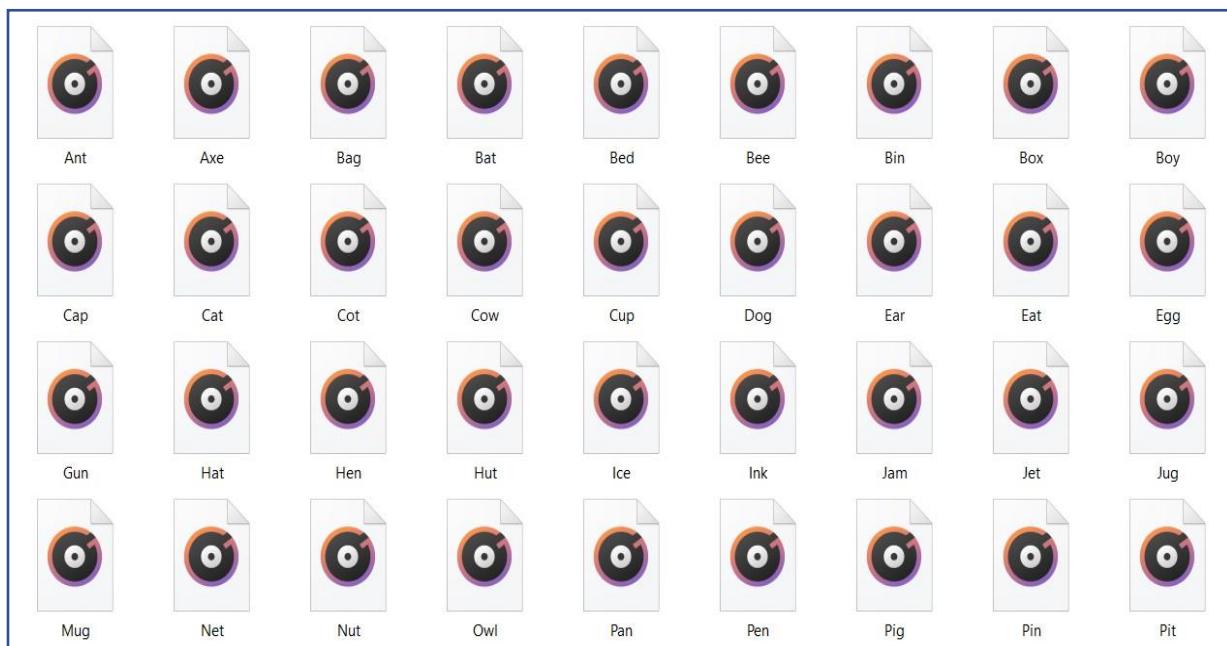


Figure 8.8 Some Audio Files

9. Interfaces

9.1 Quiz River

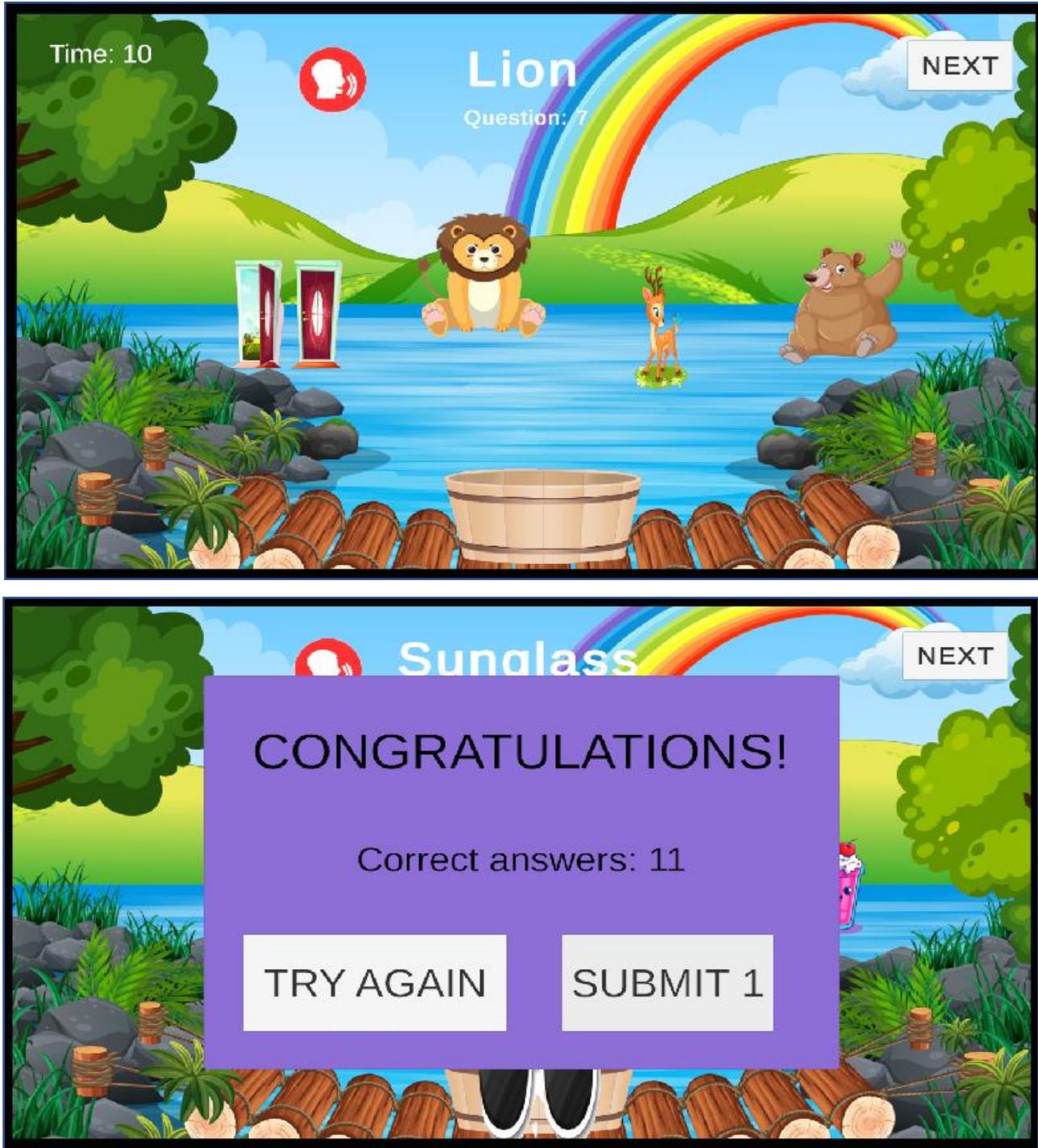


Figure 9.1 Quiz River UIs

9.2 Progress Map

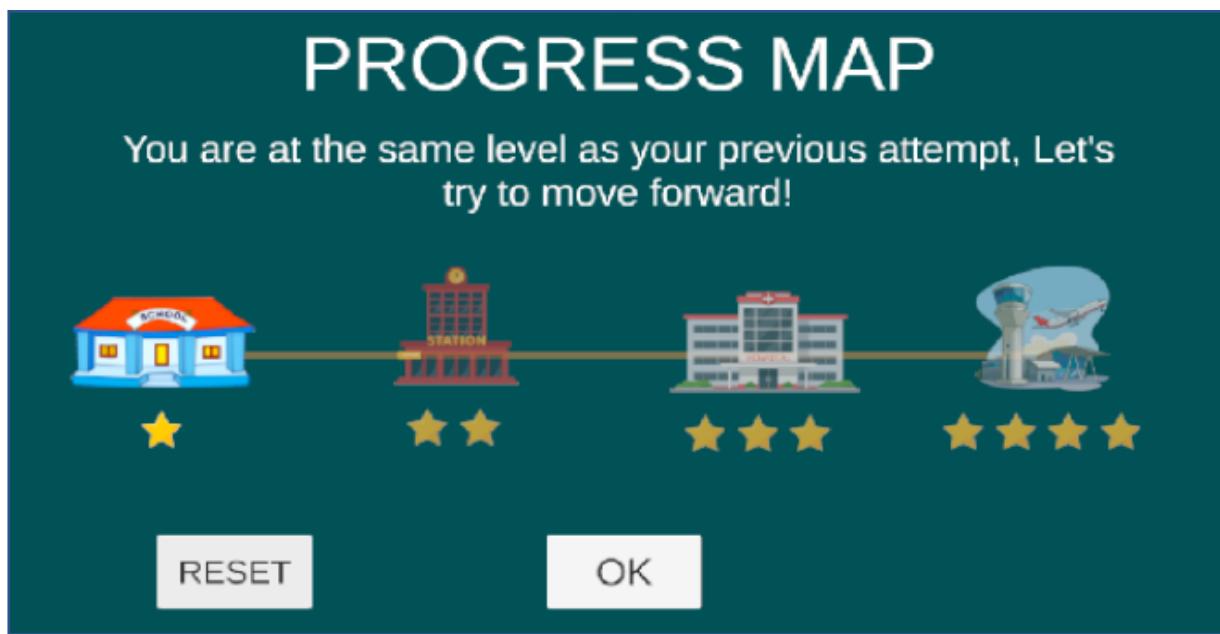


Figure 9.2 Progress Map UI

10. Random Forest Model

Random forest model was used to evaluate the factors,

- Answer Accuracy
- Difficulty Level
- Time Spent

The model is implemented with 98% of accuracy with hyperparameter values as this.

- N_estimator = 20
- Max_depth = 20
- Min_sample_leaf = 1

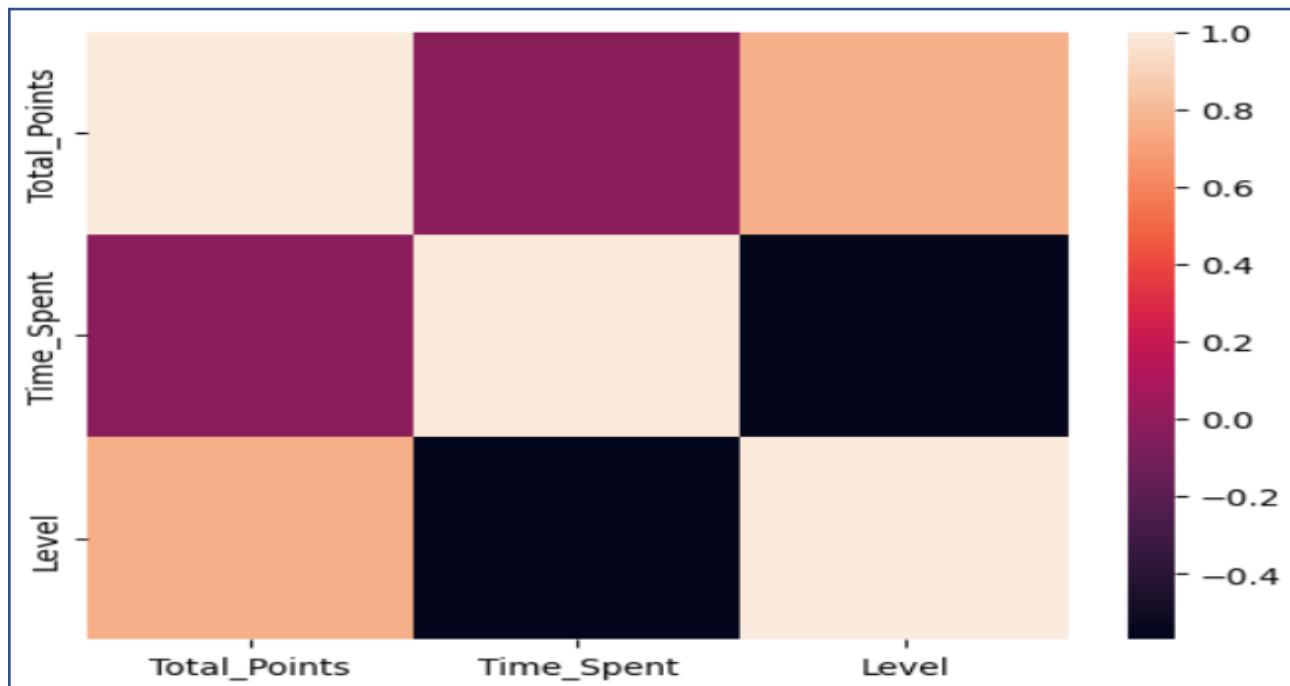


Figure 10.1 Co-relation Matrix

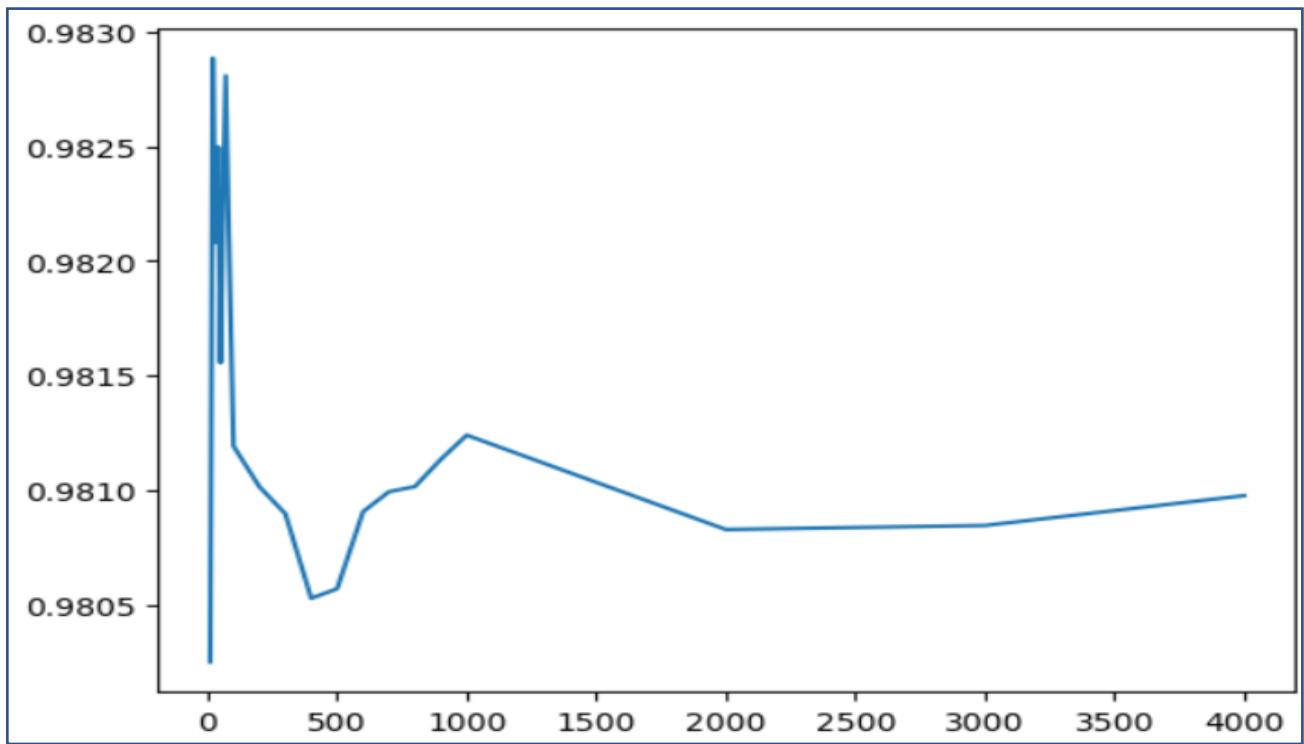


Figure 10.2 *n_estimator* tuning

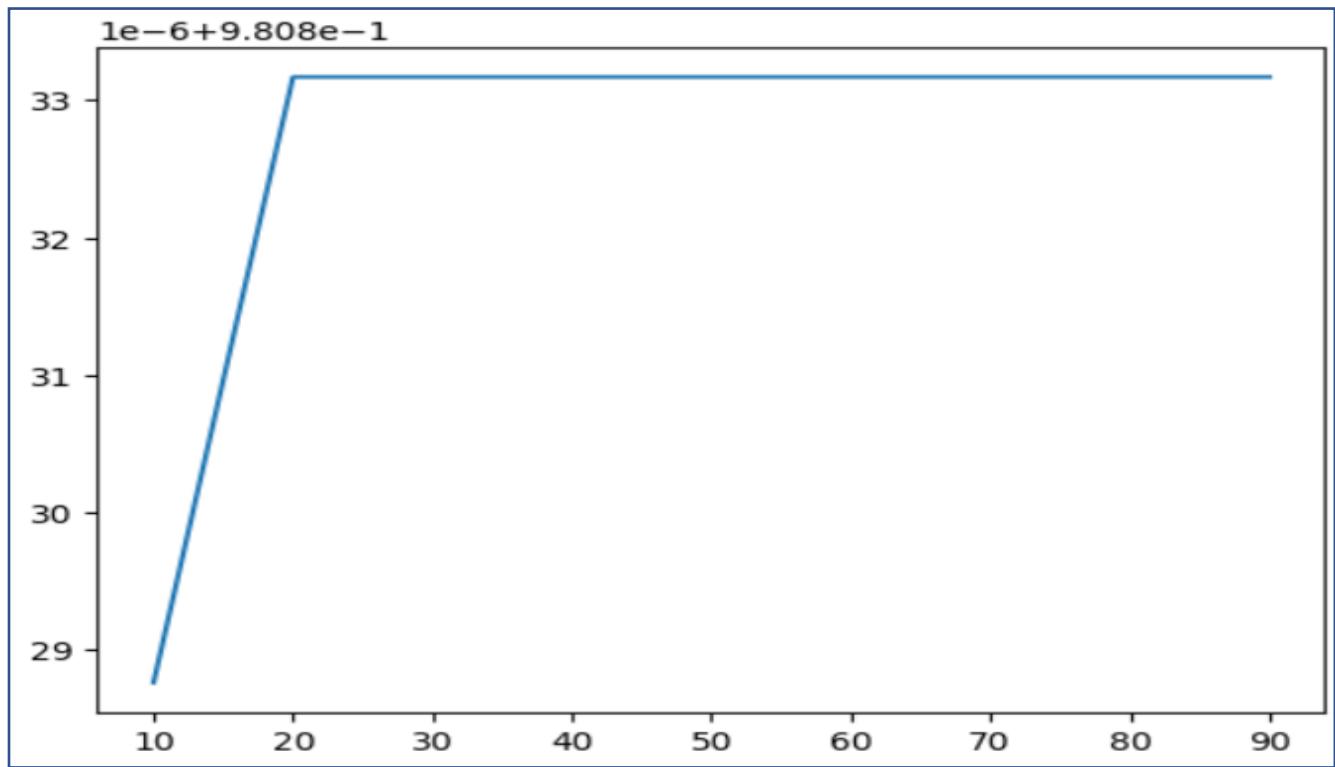


Figure 10.3 *max_depth* tuning

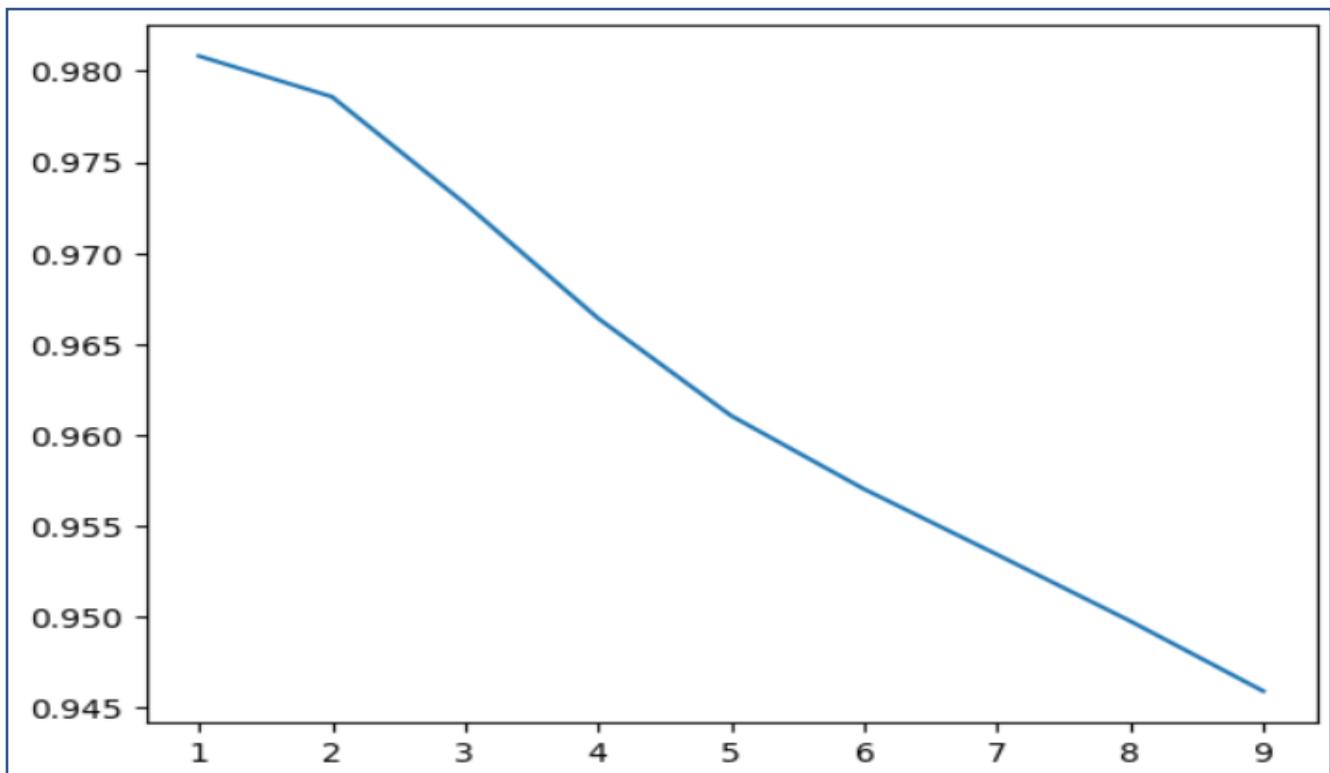


Figure 10.4 `min_sample_leaf` tuning

11. Ghantt Chart

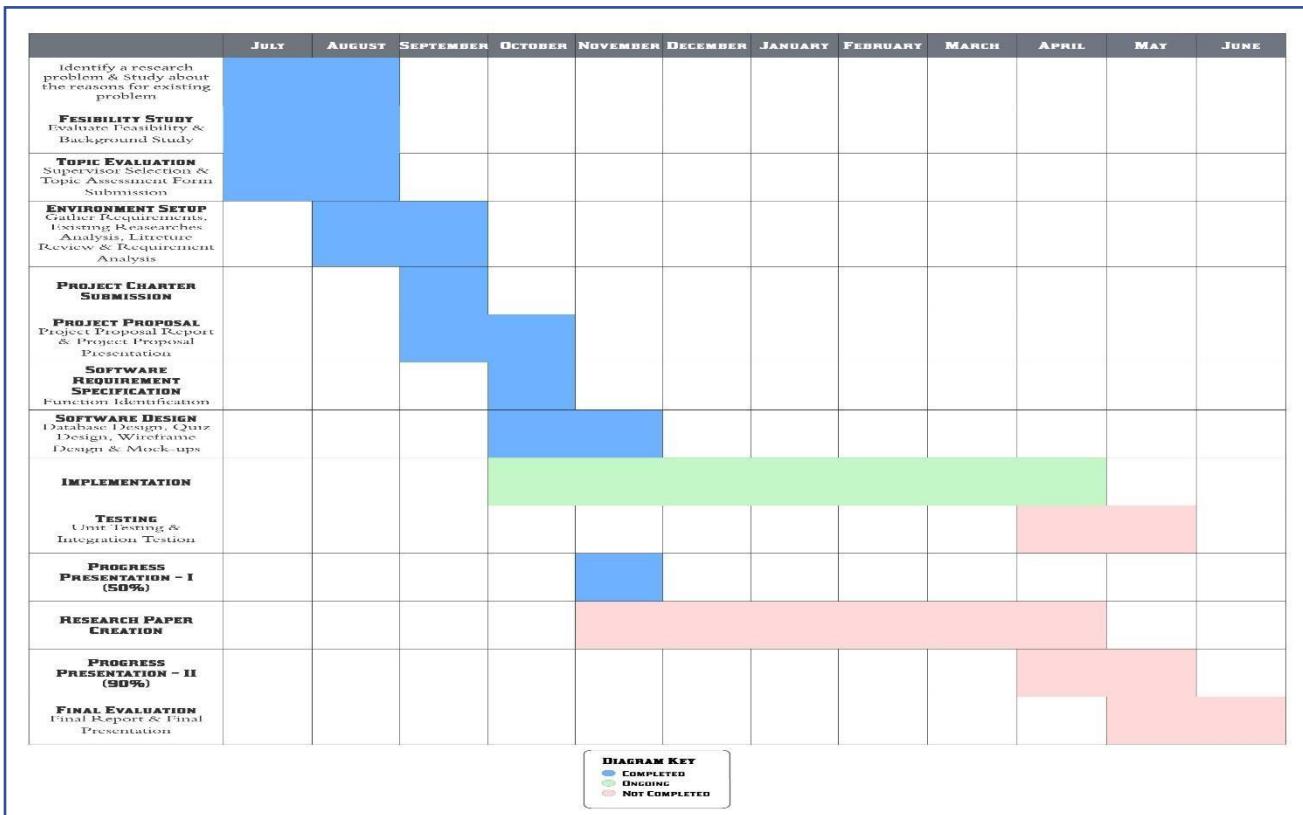


Figure 11.1 Ghantt Chart

12. Teams Planner Charts

Priyanka P.D.M.K

+ Add task

Completed tasks 15 ^

- ✓ Progress-map finalizing
-  Completed by Priyanka P.D.M.K i...
- ✓ Develop Backend for Quiz-River
-  Completed by Priyanka P.D.M.K i...
- ✓ Model Creation for Progress Map
-  Completed by Priyanka P.D.M.K i...
- ✓ Data Process for Progress Map
-  Completed by Priyanka P.D.M.K i...

Figure 12.2 My Task List 1

Priyanka P.D.M.K

+ Add task

- ✓ Data Process for Progress Map
-  Completed by Priyanka P.D.M.K i...
- ✓ Progress-map Development
-  Completed by Priyanka P.D.M.K i...
- ✓ Creating Presentation for PP1
-  Completed by Priyanka P.D.M.K i...
- ✓ Training the Model
-  Completed by Priyanka P.D.M.K i...

Figure 12.3 My Task List 2

Priyanka P.D.M.K

+ Add task

- ✓ Model Development
-  Completed by Priyanka P.D.M.K i...
- ✓ Developing Quiz Functionality
-  Completed by Priyanka P.D.M.K i...
- ✓ Creating Game UI for Quiz River
-  Completed by Priyanka P.D.M.K i...
- ✓ Collecting Audio Files
-  Completed by Priyanka P.D.M.K i...

Figure 12.3 My Task List 3

Priyanka P.D.M.K

+ Add task

-  Completed by Priyanka P.D.M.K i...
- ✓ Finalizing Pictures for Quiz
-  Completed by Priyanka P.D.M.K i...
- ✓ Collecting Pictures for Quiz
-  Completed by Priyanka P.D.M.K i...
- ✓ English Content Gathering
-  Completed by Priyanka P.D.M.K i...
- ✓ Finalizing a method to Determine Level
-  Completed by Priyanka P.D.M.K i...

13. Project Completion Criteria

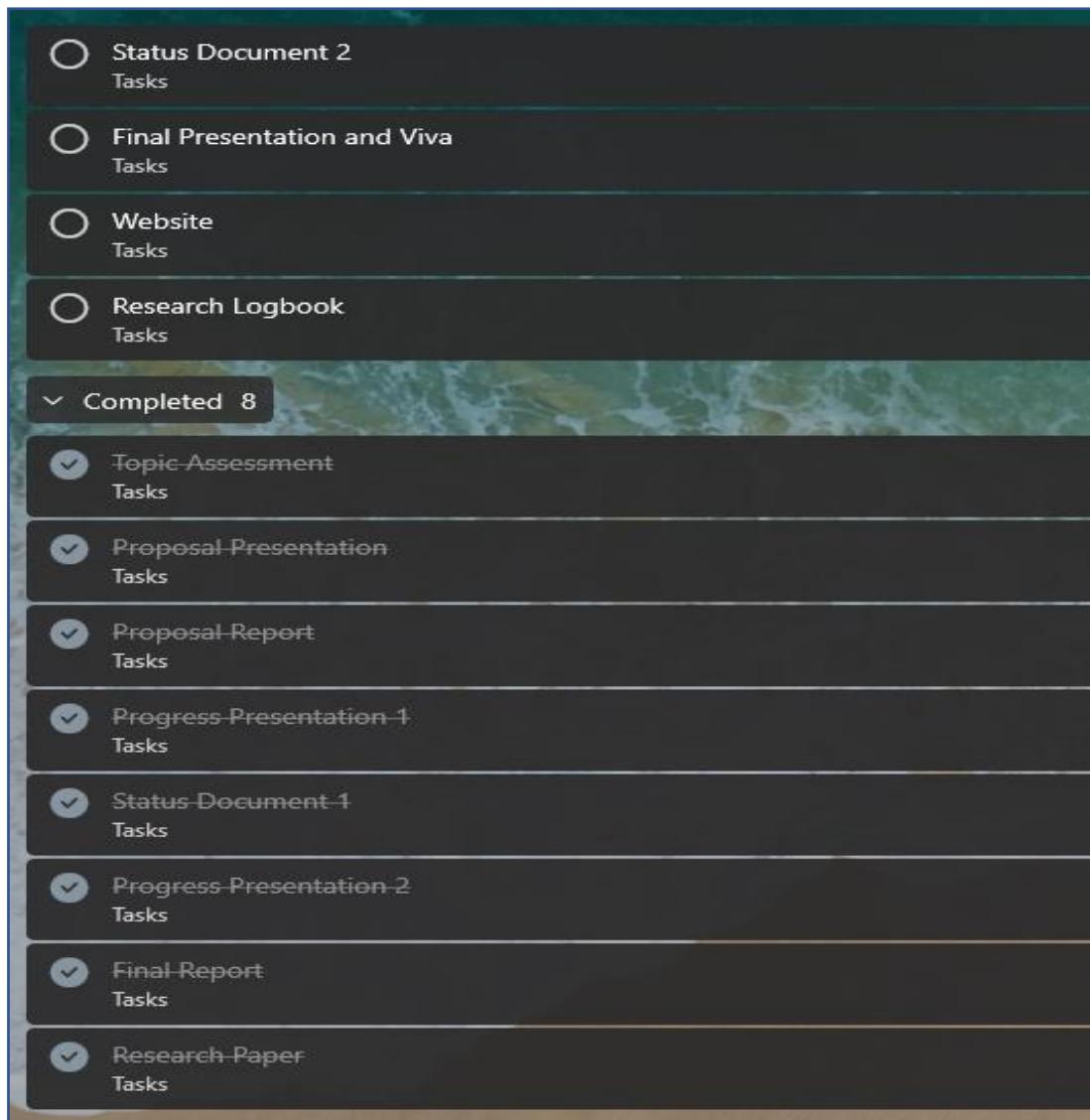


Figure 13.1 Project Completion

14. Test Cases

14.1 Check the accuracy of the answer – positive case.

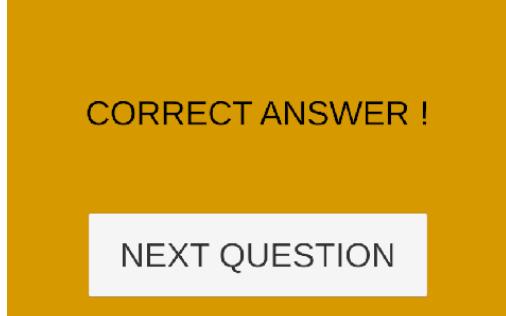
Test Case ID	01
Test Case	Check the accuracy of the answer when a correct answer is given
Pre-Conditions	Select accurate image and drop it into the basket
Input	Accurate Image
Expected Output	"Correct Answer" popup window
Actual Result	
Status	Pass

Table 14.1 Check the accuracy of the answer = positive test case

14.2 Check the accuracy of the answer – negative case.

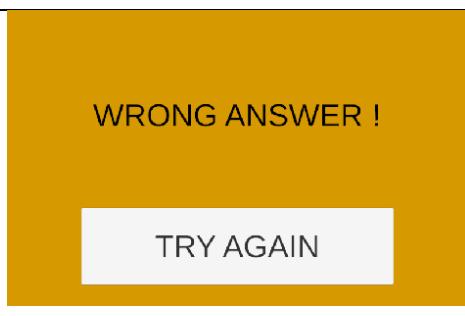
Test Case ID	02
Test Case	Check the accuracy of the answer when an incorrect answer is given
Pre-Conditions	Select inaccurate image and drop it into the basket
Input	Inaccurate Image
Expected Output	"Wrong Answer" Pop up window
Actual Result	
Status	Pass

Table 14.2 Check the accuracy of the answer = negative test case

14.3 Identify level for the attempt.

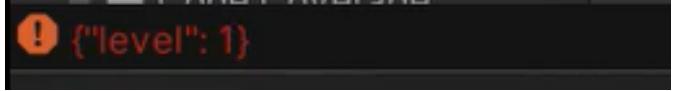
Test Case ID	03
Test Case	Identify the level for the attempt using the results
Pre-Conditions	The user should finish the quiz and click on submit button and the random forest model trained
Input	Time Spent for the Quiz and Points Earned
Expected Output	The level of the user
Actual Result	
Status	Pass

Table 14.3 Identify the level for the attempt test case

14.4 Display Comments for the User

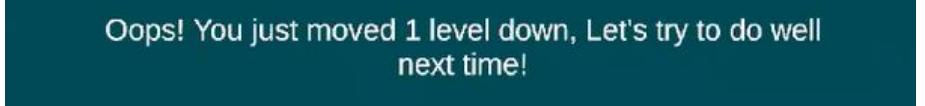
Test Case ID	04
Test Case	Display comment for the user based on their level for the attempt
Pre-Conditions	The user should finish the quiz and click on submit button to view results
Input	Level of the User
Expected Output	Comment displayed for the user
Actual Result	
Status	Pass

Table 14.4 Display comments for the user test case

14.5 Display the Progress in a Map

Test Case ID	05
Test Case	Display the progress of the user in a map for more visibility
Pre-Conditions	The user should click to view the progress map
Input	The level of the user
Expected Output	Progress map displayed
Actual Result	<p style="text-align: center;">PROGRESS MAP</p> <p style="text-align: center;">Oops! You just moved 1 level down, Let's try to do well next time!</p>
Status	Pass

Table 14.5 Display Progress Map Test Case

15. Field Visits



Figure 15.1 CEHIC Visit 1



Figure 15.2 CEHIC Visit 2



Figure 15.3 Going through learning materials at CEHIC

-End of the Document-