

**ENHANCING CONVERSATIONAL AI MODEL  
PERFORMANCE AND EXPLAINABILITY FOR  
SINHALA-ENGLISH BILINGUAL SPEAKERS**

2022-056

Project Status Document - I

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B.Sc. (Hons) Degree in Information Technology Specialising in Data  
Science

Department of Information Technology

Sri Lanka Institute of Information Technology  
Sri Lanka

May 2022

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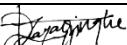
Department of Information Technology

Sri Lanka Institute of Information Technology  
Sri Lanka

May 2022

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We declare that this is our own work, and this project status document does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any other university or Institute of higher learning and to the best of our knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

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# 1. MICROSOFT TEAMS SCREENSHOT

## 1.1 Calls with the team

The following screenshots include all the calls that were taken via the Microsoft Teams channel, created for the Research project team.

### Team Meetings

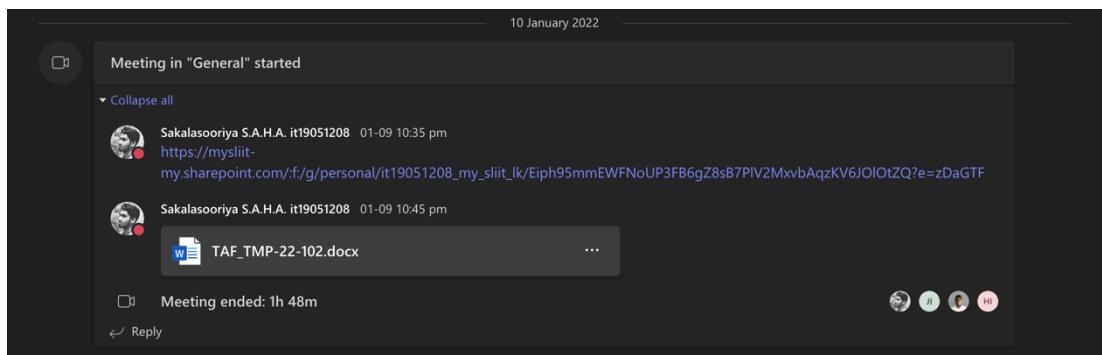


Figure 1.1. 1. Topic assessment form preparation discussion meeting

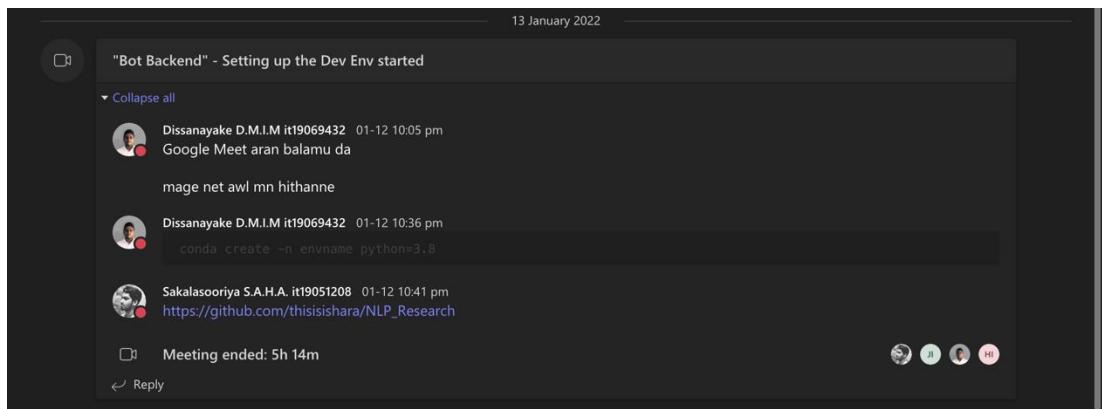


Figure 1.1. 2. Chatbot backend design planning meeting

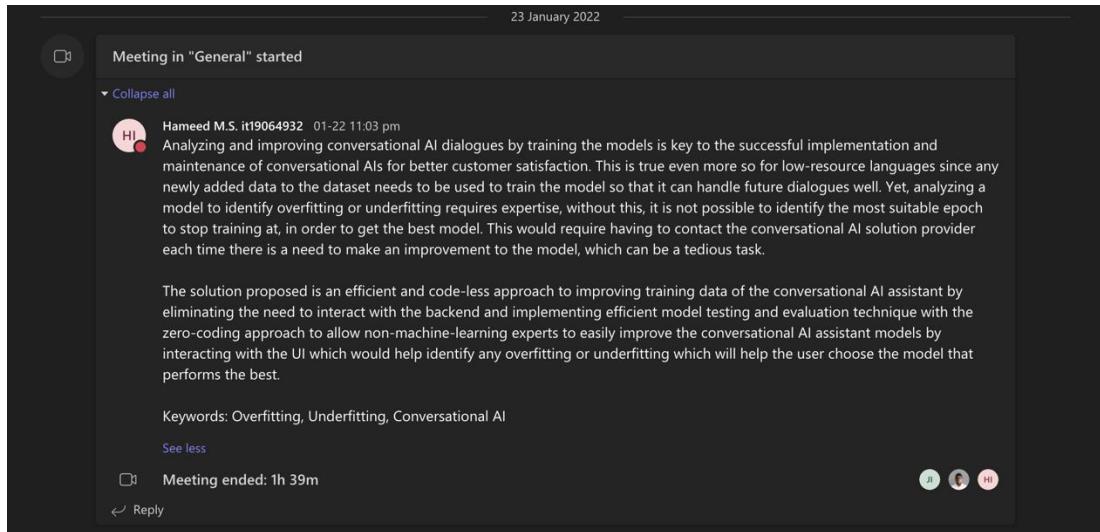


Figure 1.1. 3. Charter document preparation team discussion - I

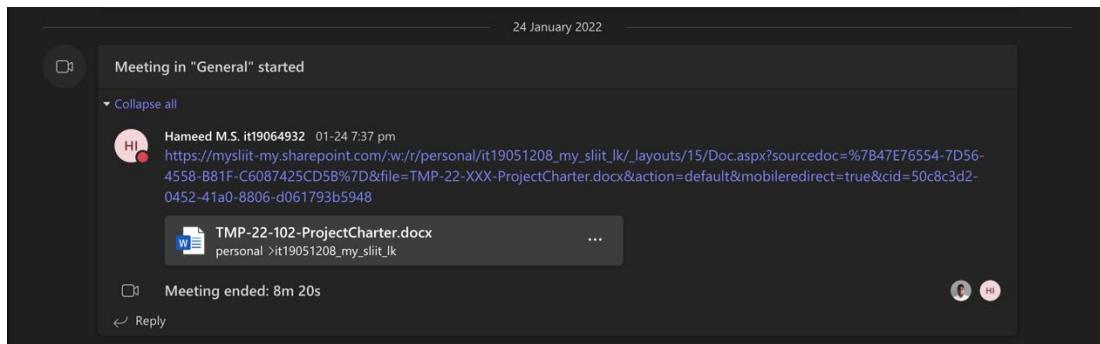


Figure 1.1. 4 Charter document preparation team discussion - II

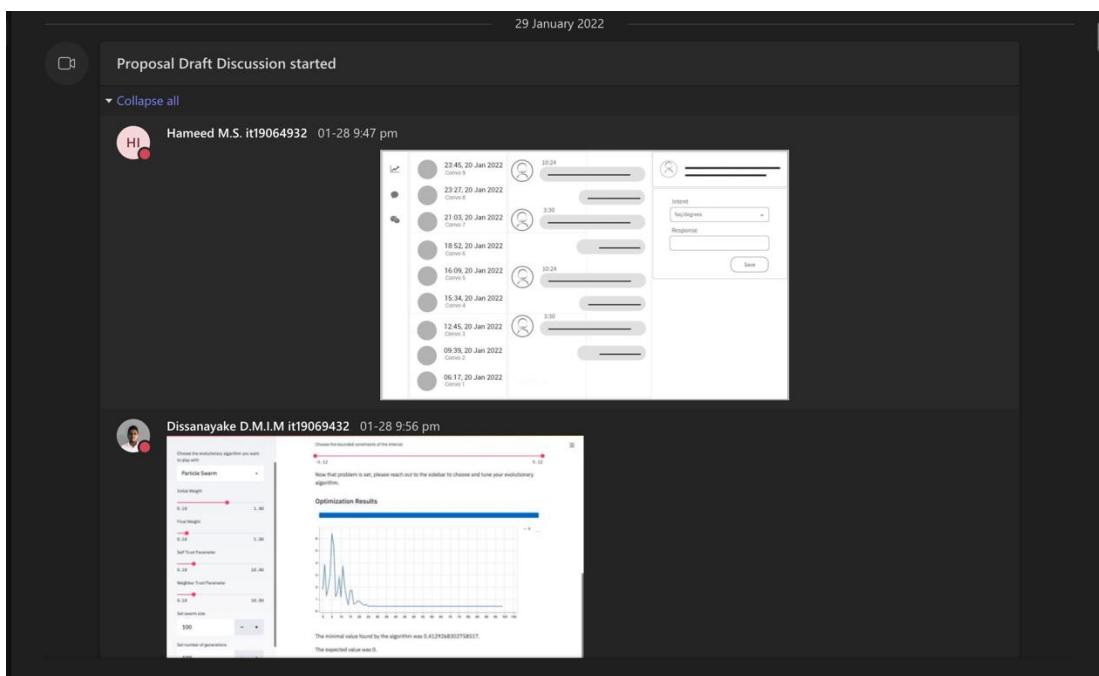


Figure 1.1. 5. Research proposal draft preparation discussion meeting

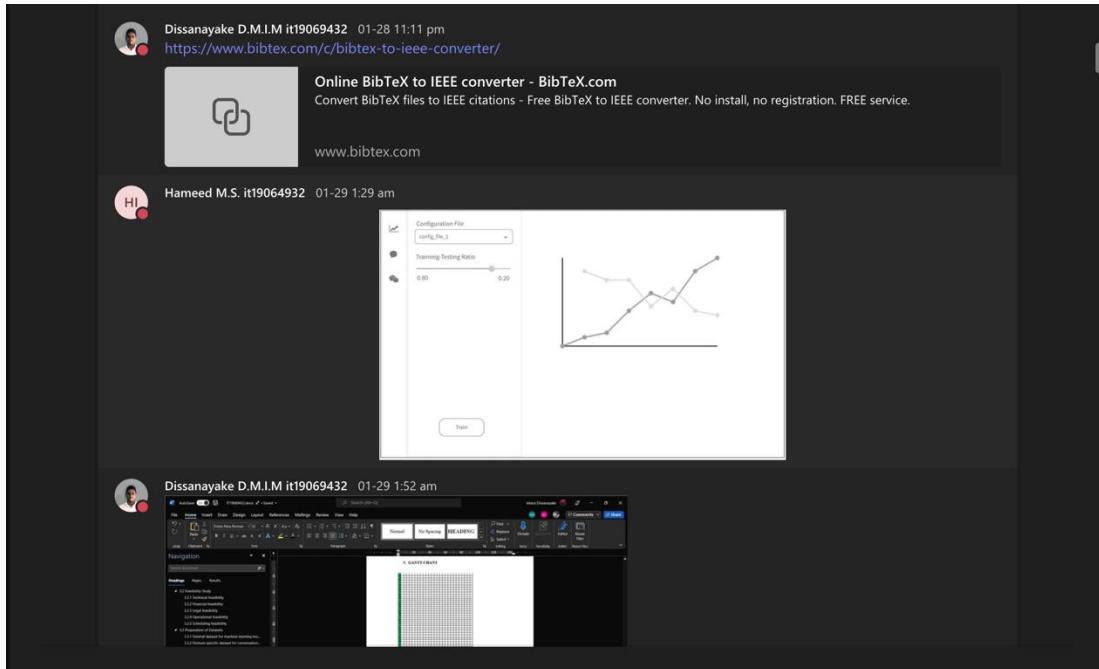


Figure 1.1. 6 Files shared during the project proposal draft meeting - I

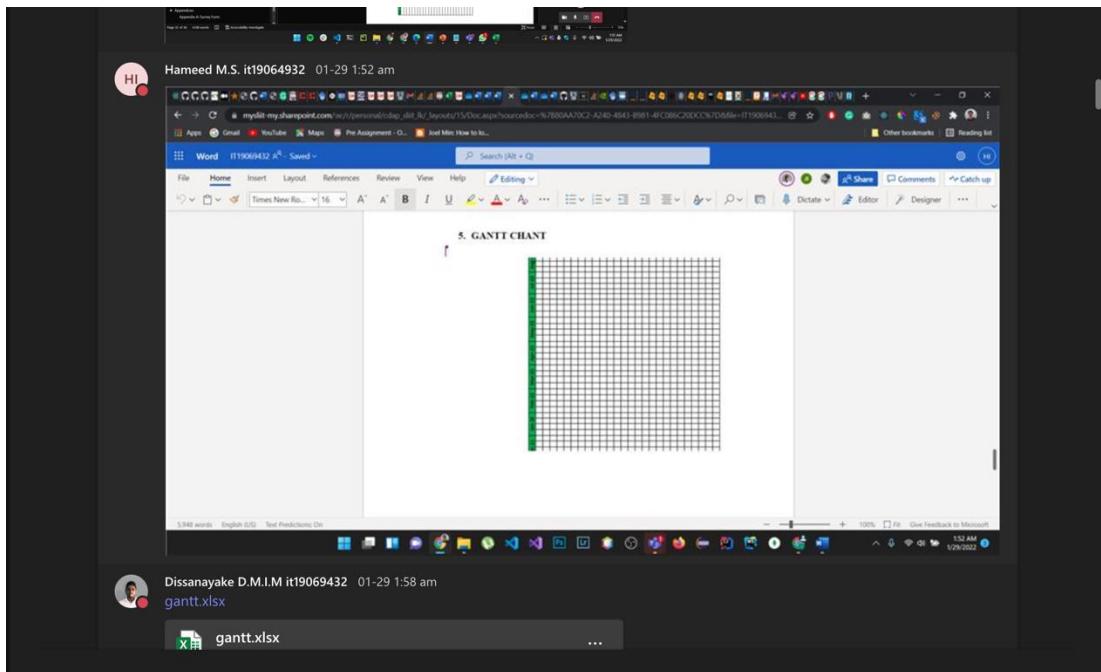


Figure 1.1. 7 Gantt chart designed during the proposal draft discussion meeting - I

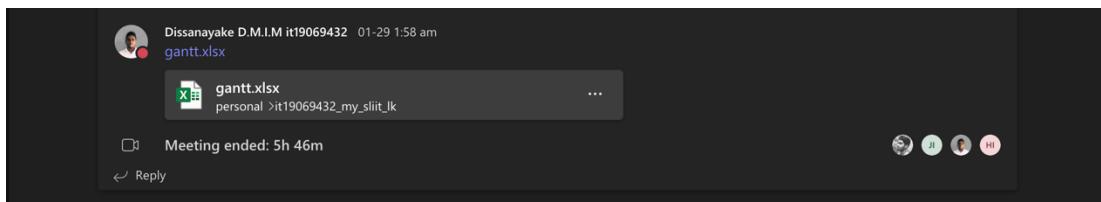


Figure 1.1. 8 Gantt chart designed during the proposal draft discussion meeting - II

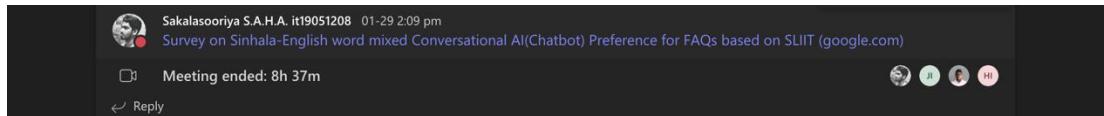


Figure 1.1. 9 Survey planning and designing meeting

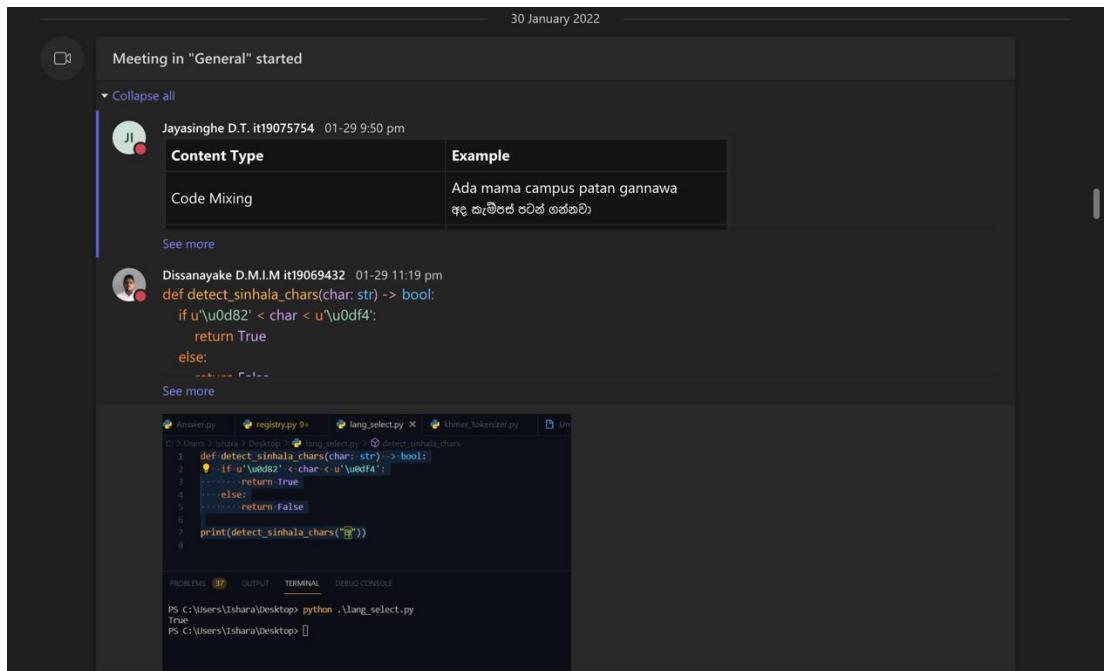


Figure 1.1. 10 Files shared during the project proposal draft meeting - II

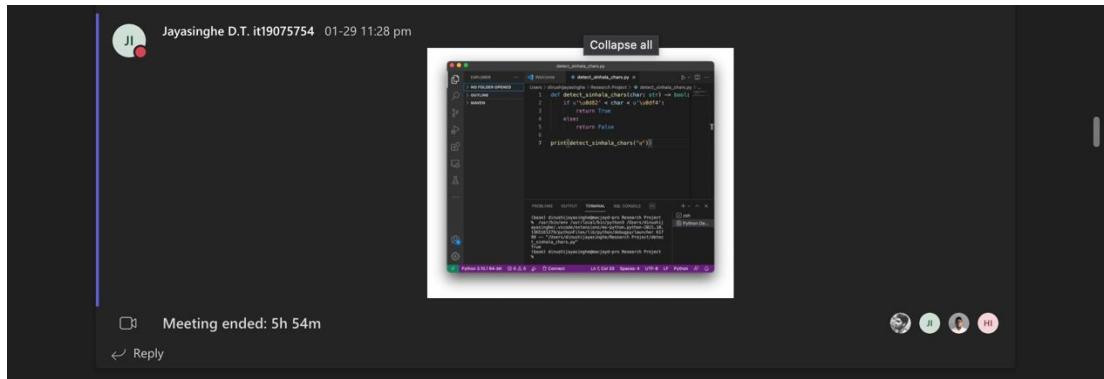


Figure 1.1. 11 Files shared during the project proposal draft meeting - III

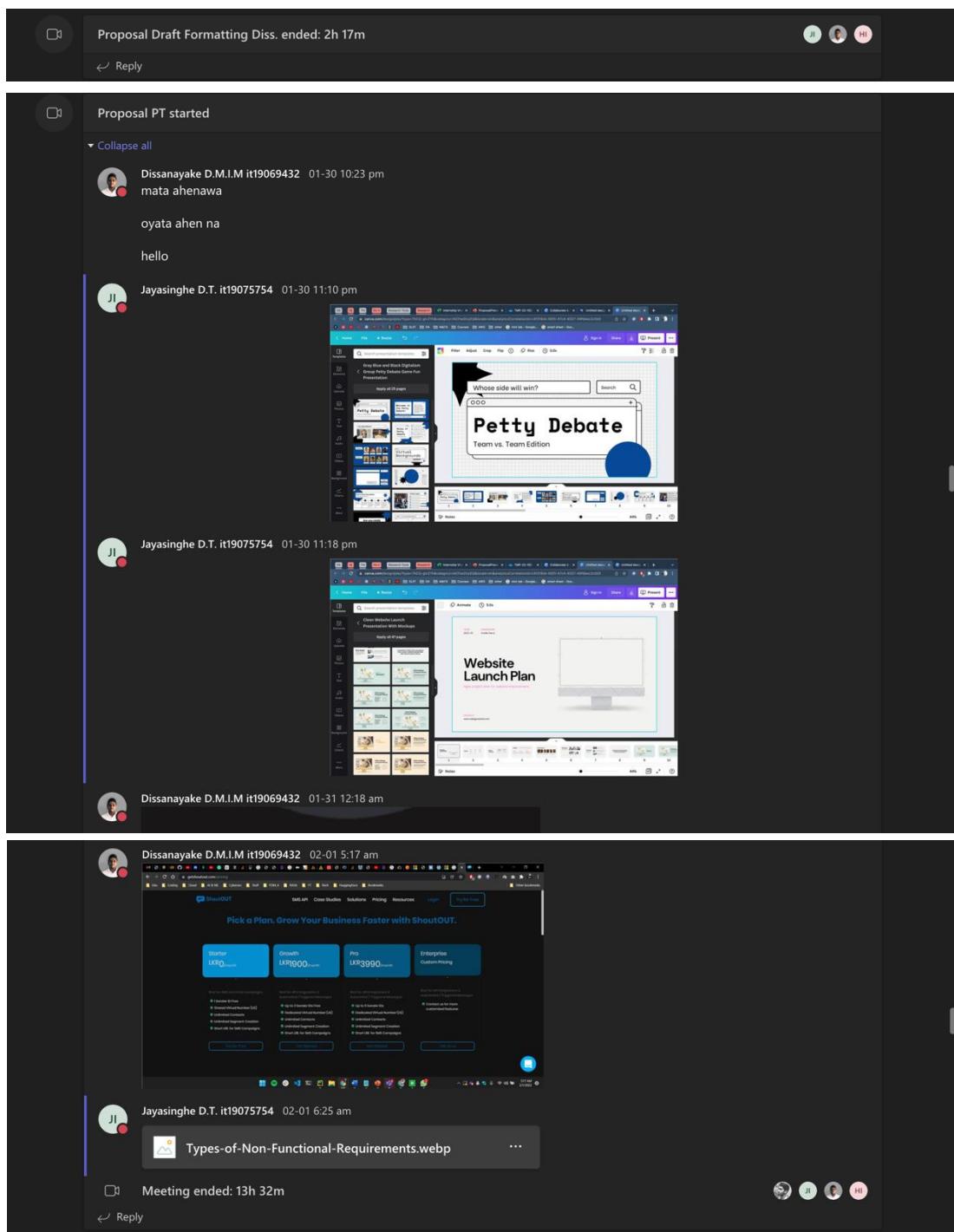


Figure 1.1. 12. Ideas shared during proposal presentation planning discussion - I

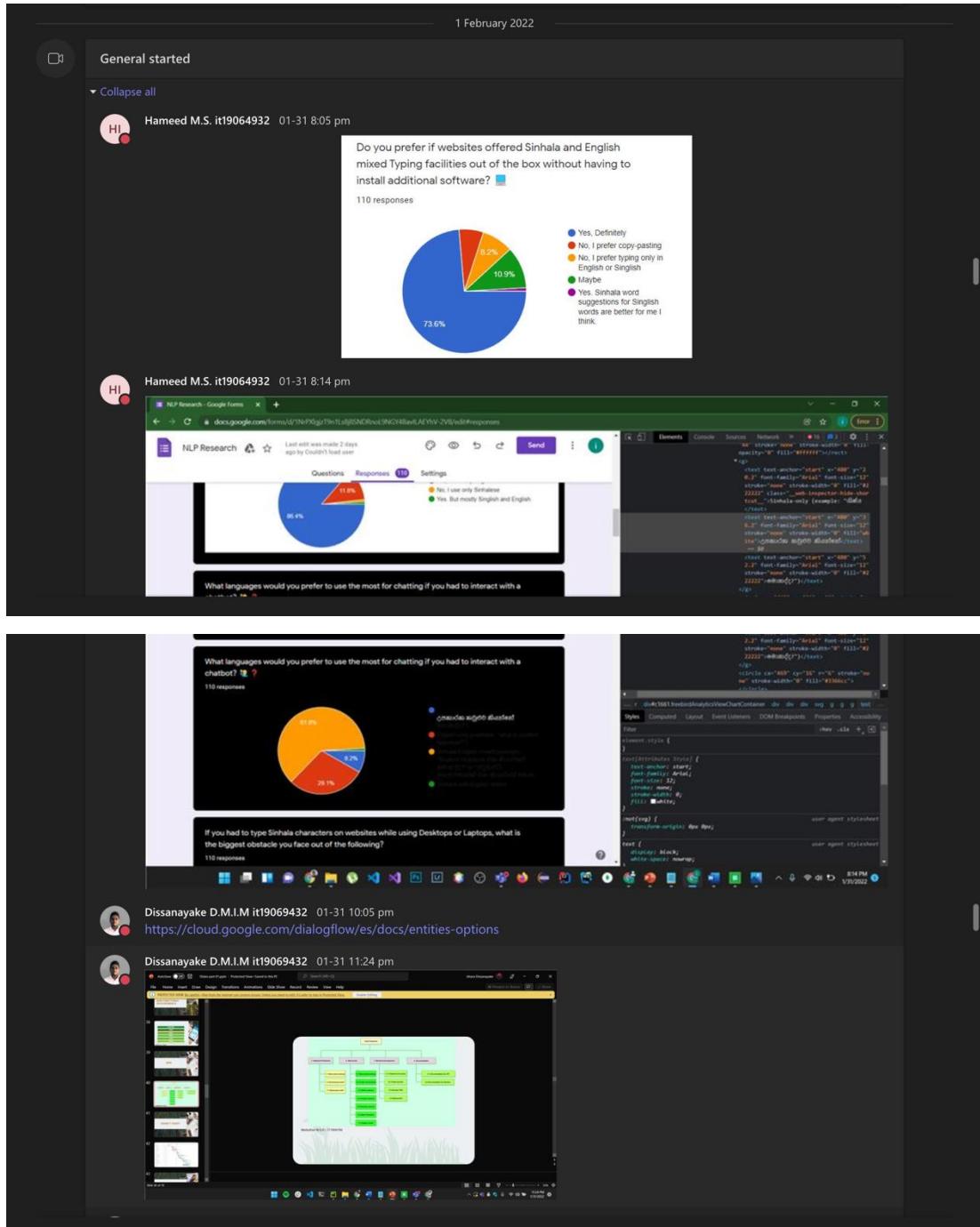


Figure 1.1. 13. Ideas shared during proposal presentation planning discussion - II

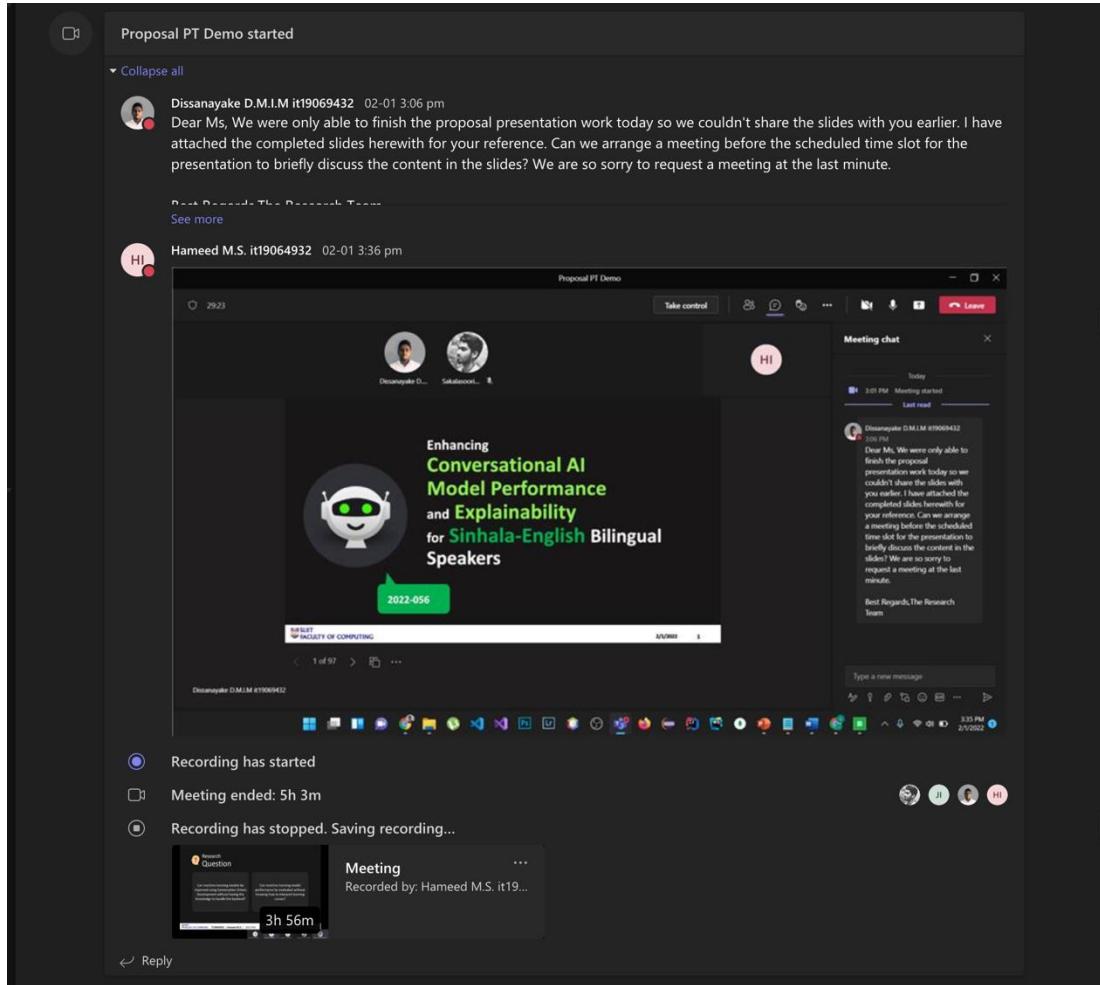


Figure 1.1. 14. Proposal presentation demo meeting

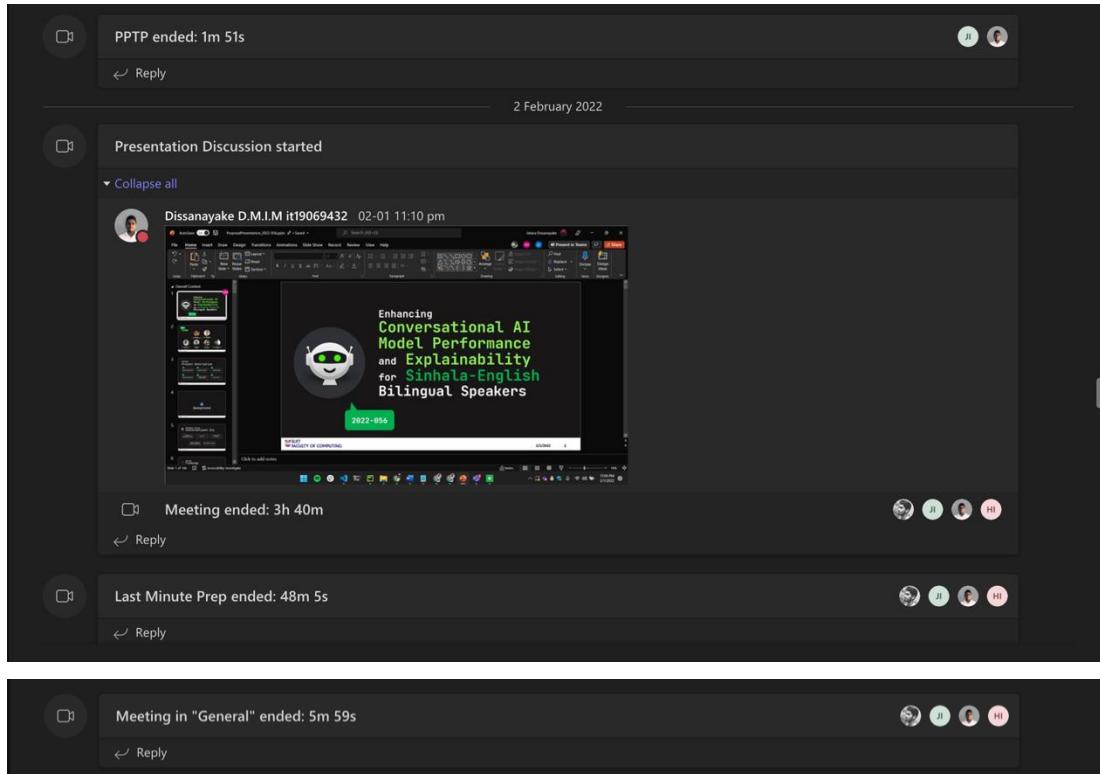


Figure 1.1. 15. Proposal presentation last-minute preparation meetings

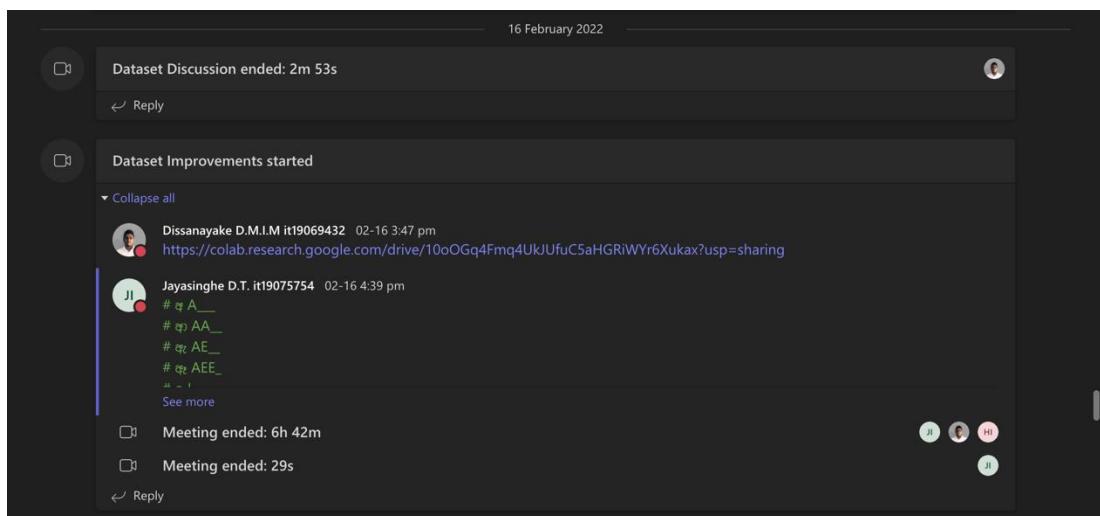


Figure 1.1. 16. Initial dataset preparation planning discussion meeting

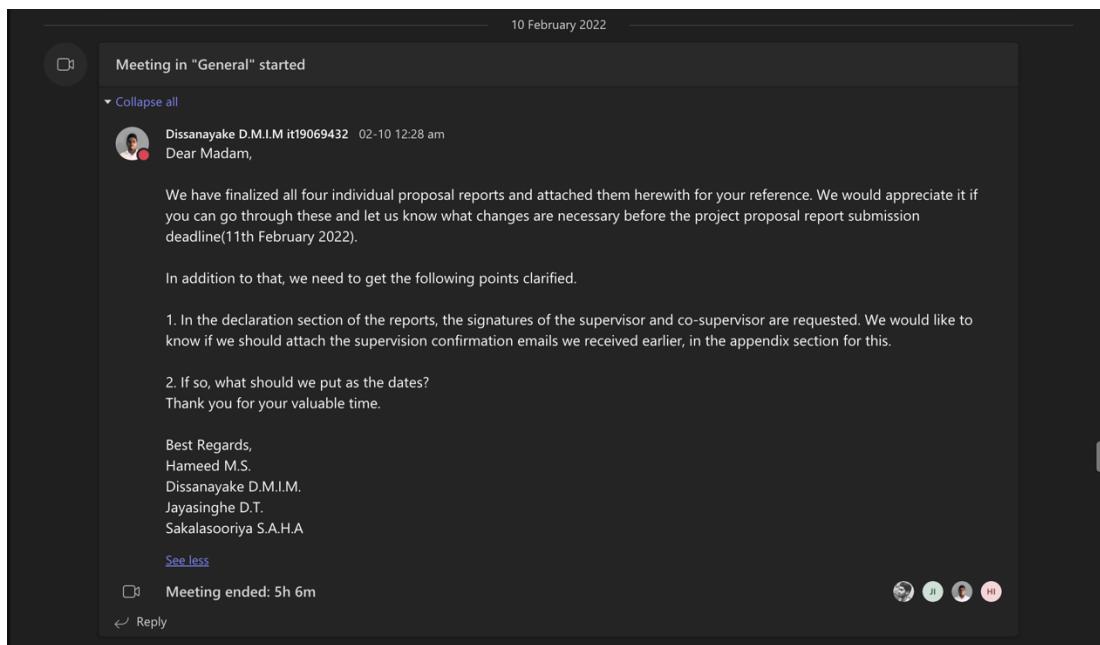


Figure 1.1. 17. Proposal draft submission finalization meeting

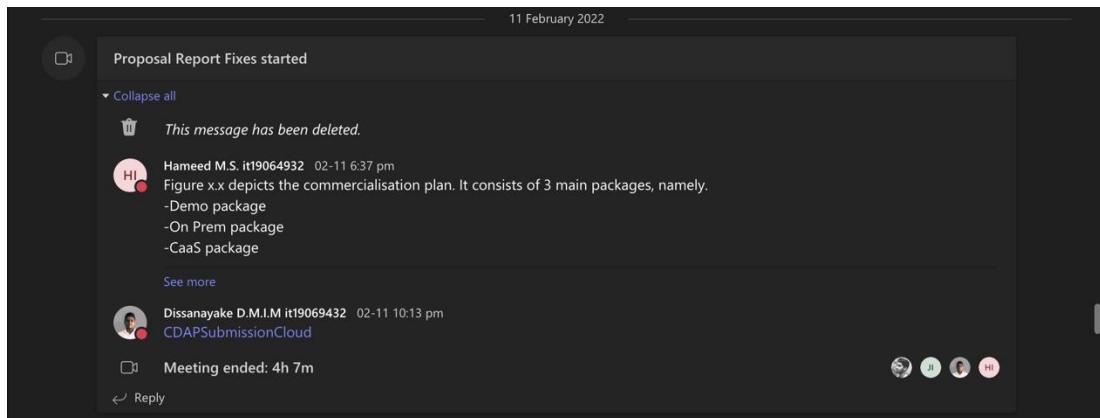


Figure 1.1. 18. Proposal draft review and proofreading discussion

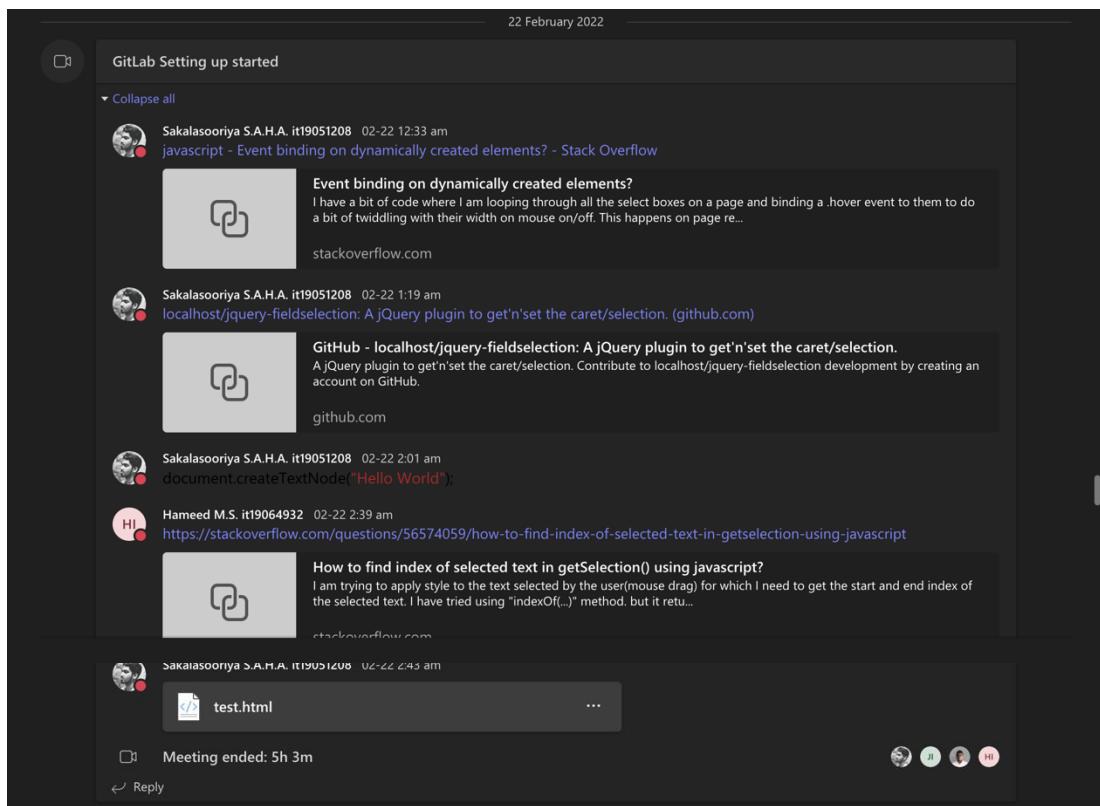


Figure 1.1. 19 GitLab repository setting up meeting

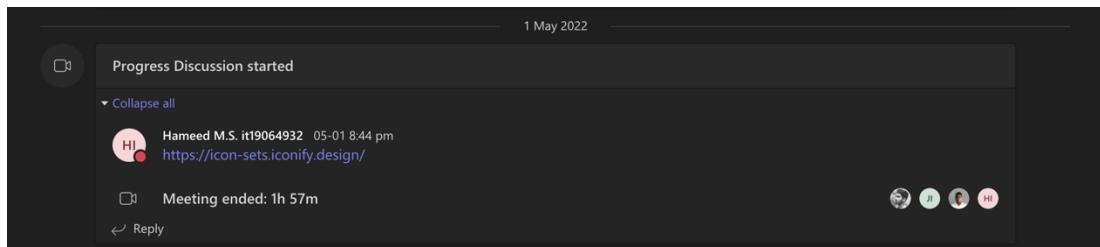


Figure 1.1. 20. Research 50% progress discussion meeting with the four members

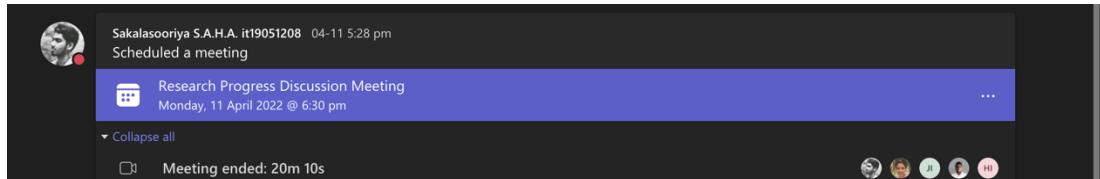


Figure 1.1. 21 Research 50% progress discussion meeting with the team including supervisors

## Individual Teams meetings

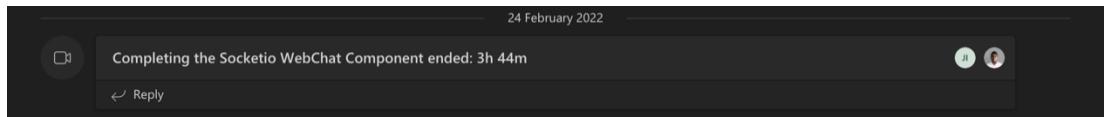


Figure 1.1. 22. Meeting with Dissanayake D.M.I.M. to discuss about Webchat component integration

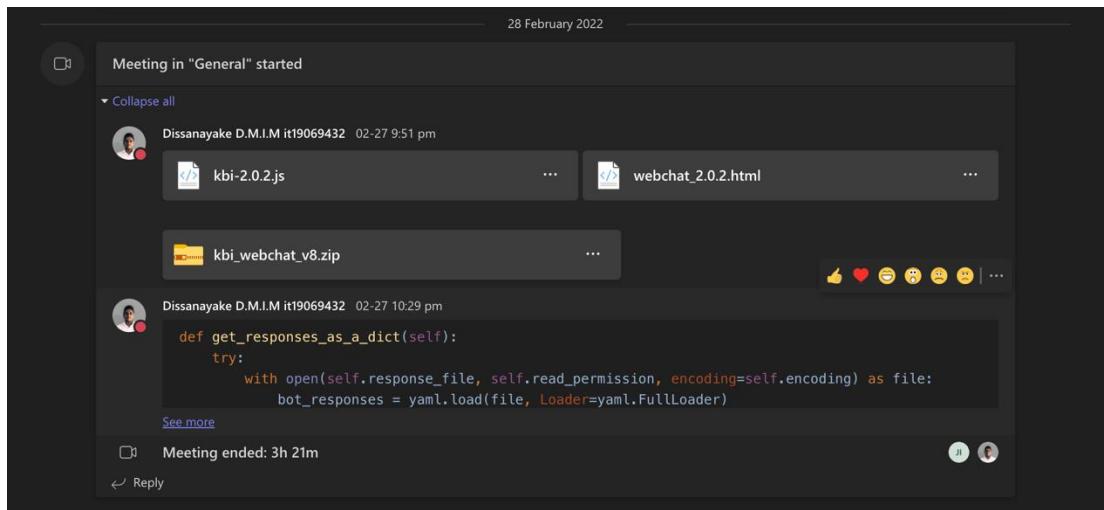


Figure 1.1. 23. Meeting with Dissanayake D.M.I.M. to discuss the Keyboard interface versioning and integration

## 1.2 Conversations with the team

Following screenshots include all the conversations that took place via the Microsoft Teams channel, created for the Research project team.

### Group conversations

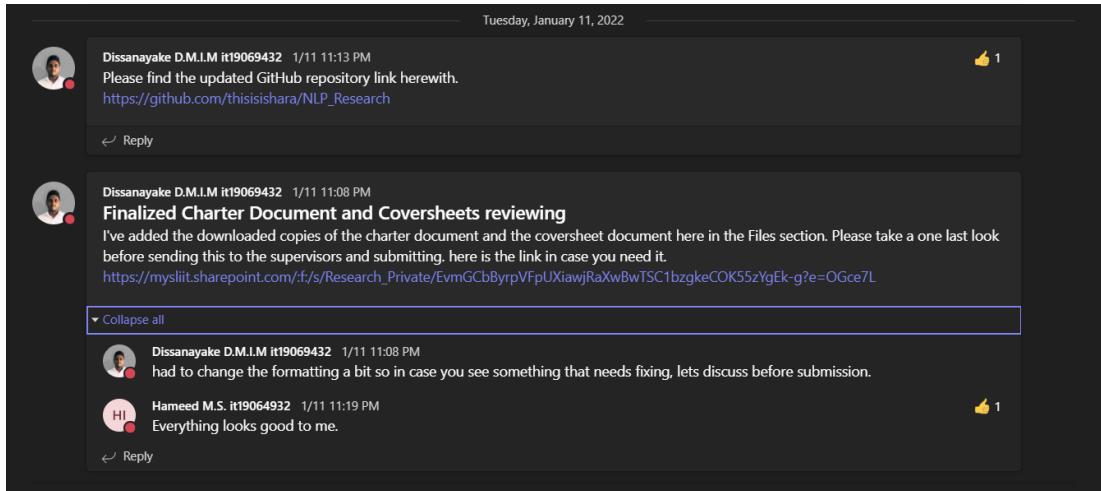


Figure 1.2. 1. Charter document review conversation

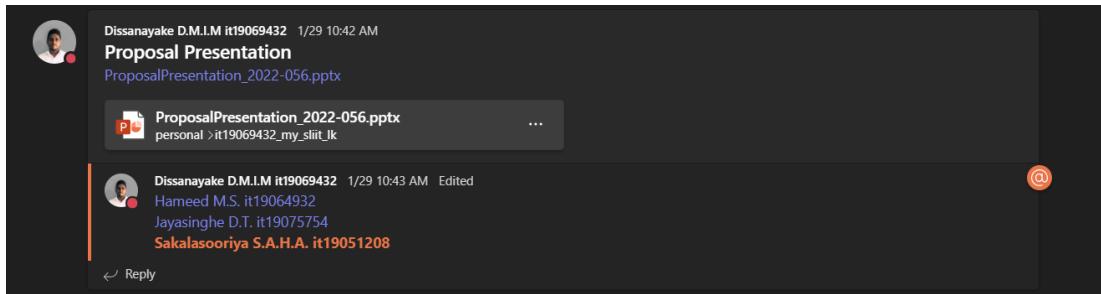


Figure 1.2. 2 Initial proposal presentation sharing and discussion

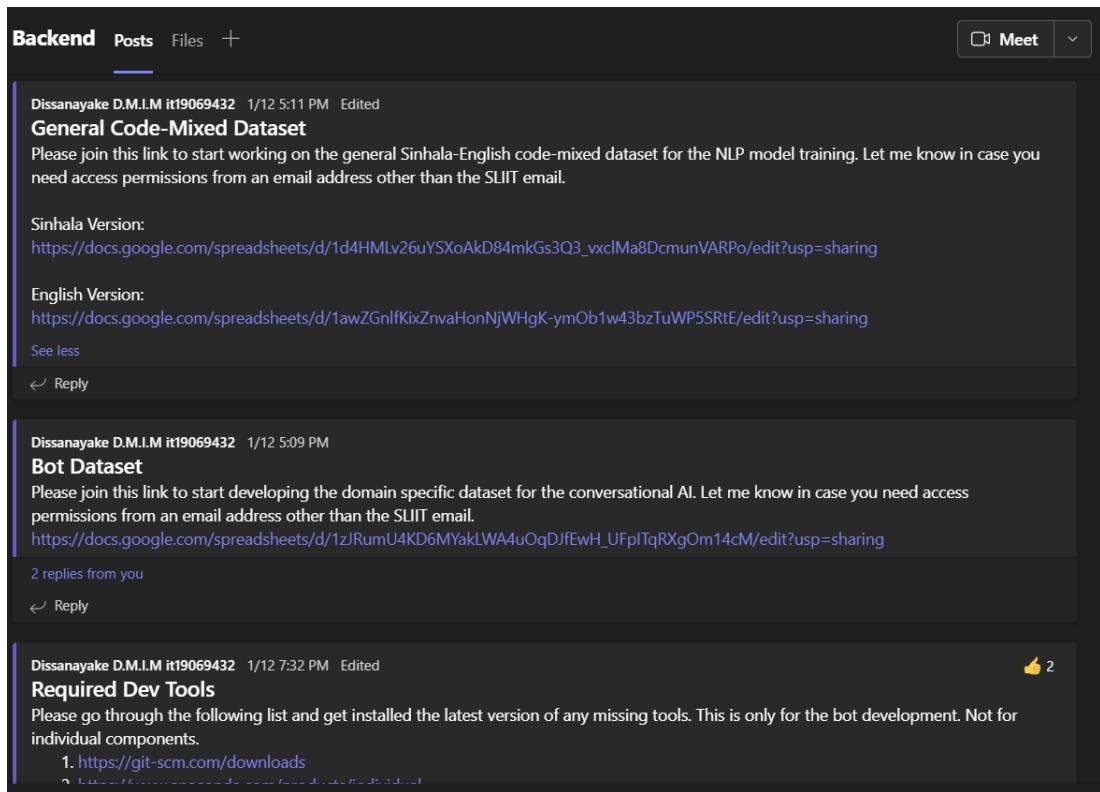


Figure 1.2. 3. Discussion / Resources sharing on dataset and development tools

## Individual conversations / replies

The screenshot shows a Slack interface. At the top, there's a search bar and a user icon. Below the header, the 'General' channel is selected. The conversation starts with a message from 'Lakmini Abeywardhana' at 6:35 pm asking about progress. Jayasinghe D.T. responds at 6:18 pm, reporting 50% progress on 'Token Mapping' and providing a status update as of 5/12/2022. The message continues with a list of completed tasks and links to resources for rule building and Unicode conversion. It also lists remaining tasks, including training and testing the SEETM algorithm. A 'New conversation' button is visible at the bottom.

Lakmini Abeywardhana Monday 6:35 pm  
How's your progress every one ?  
When you are going to have your pp1?

[See more](#)

Jayasinghe D.T. it19075754 6:18 pm  
**50% Progress - Token Mapping**  
STATUS as of 5/12/2022

The completed tasks are:

1. Finished the development of Sinhala-English Code-switchable Keyboard Interface (JavaScript).
2. The keyboard interface script can be attached to any HTML page with a textbox/text field input.
3. Works offline if required to use for a different purpose other than communicating with the a bot which is the primary intention.
4. Used keystroke mapping rules. (Manually built the rules considering the Sinhala word patterns--rules in total)
5. Enable efficient way to switch between English and Sinhala language. (Can toggle between SI and EN using CTRL+Q or a toggle button provided in the UI)

For rules building referred: Helakuru Keyboard: <https://www.helakuru.lk/keyboard>,  
Unicode Real Time Converter (UCSC): <https://ucsc.cmb.ac.lk/ltri/services/fecompiler/t1.html>

The remaining tasks:

1. Training and Evaluating the SEETM algorithm using the word2Vec Model.
2. Testing SEETM algorithm and keyboard interface after deployment.
3. Final Integration.

[See less](#)

Reply

New conversation

Figure 1.2. 4. Project 50% status update given to supervisor

### 1.3 MS Teams Planner Project Backlog

Following screenshots include all the project backlogs created using Boards in Microsoft Teams Planner.

The screenshot shows the Microsoft Teams Planner interface with the following details:

- Left Sidebar:** Includes options for "New plan", "Hub", "Assigned to me" (which is selected), "Pinned" (with a "Research progress tracker" pinned item), and "All".
- Top Bar:** Shows the title "Planner", navigation tabs ("Board", "Charts", "Schedule", "..."), and filter/grouping options ("Filter (0)", "Group by Progress").
- Main Area:** A board view titled "Assigned to me" with three columns:
  - Not started:** Contains five tasks under "Research progress tracker": "Deployment" (due 09/07), "Building the website" (due 09/30), "Preparation of final report" (due 10/07), "Preparation for Progress presentation II" (due 09/30), and "Integration testing" (due 10/07).
  - In progress:** Contains four tasks under "Research progress tracker": "Preparation for Progress presentation I" (due 05/14), "Preparation of status document - I" (due 05/13), "Building the main frontend" (due 09/07), and "Status document/Logbook preparation" (due 10/07).
  - Completed:** Contains six tasks under "Research progress tracker": "Developing the Individual Component Frontend—SEETM" (status: "Completed by Jayasinghe D.T. it1..."), "Developing character mapping for Keyboard Interface—SEETM" (status: "Completed by Jayasinghe D.T. it1..."), "Preparation for the proposal presentation" (status: "Completed by Sakalasooriya S.A..."), "Preparation of project proposal document" (status: "Completed by Sakalasooriya S.A..."), and two other items listed as "Research progress tracker" (status: "Completed by Sakalasooriya S.A...").

Figure 1.3. 1. Project backlog with individually assigned tasks to IT19075754

## 1.4 MS Teams Planner Charts

Following screenshots include all the charts generated by Microsoft Teams planner

### Group charts

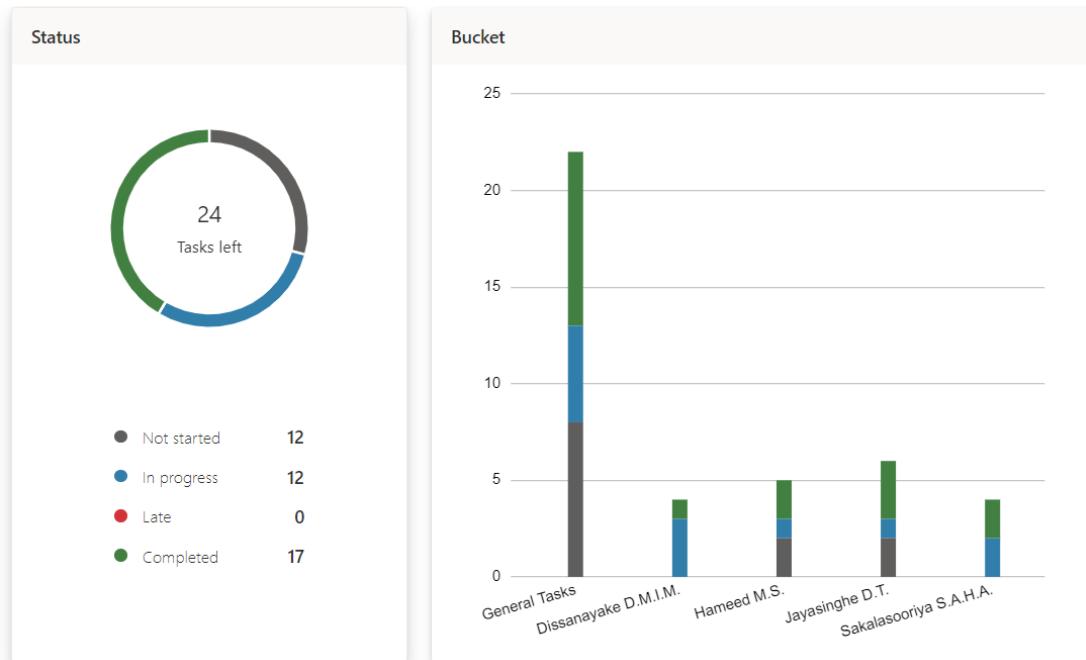


Figure 1.4. 1 Number of total tasks and tasks assigned to each member

### Individual charts

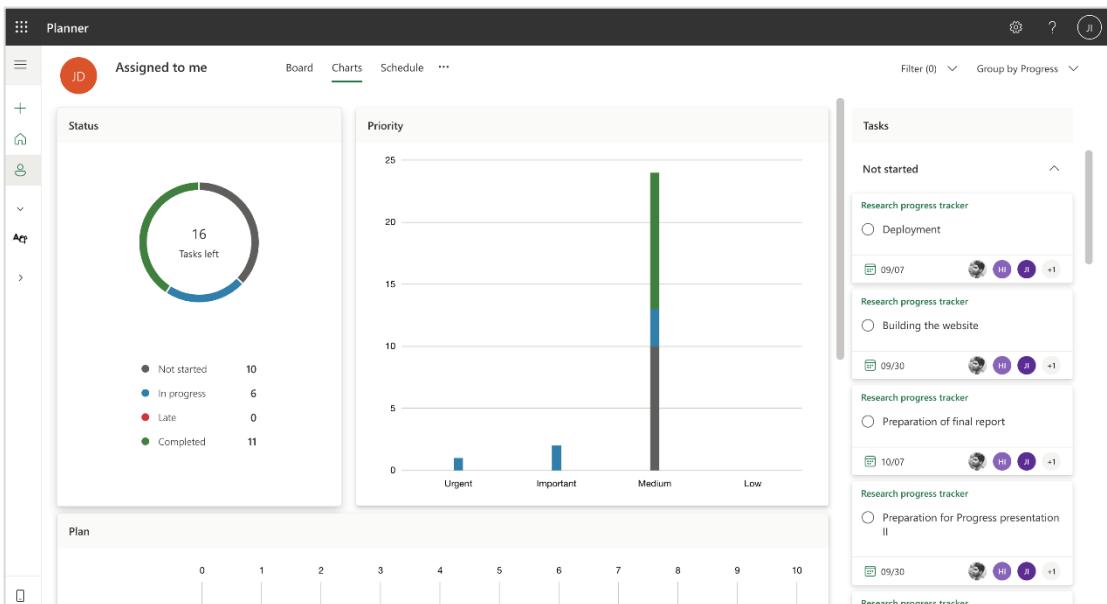


Figure 1.4. 2. Number of tasks assigned to IT19075754 along with priority

## 2. GIT LOGS

### 2.1 GitLab Branch

The following screenshot shows the Gitlab branches.

A screenshot of a GitLab interface showing a list of branches. The list is titled "Branches" and contains the following entries:

- development-shamikh
- development-ishara
- development-akalanka
- development
- development-dinushi
- main

Figure 2.1. 1 GitLab branches created

## 2.2 GitLab Contributions

The following screenshots include some of the contributions done on GitLab.

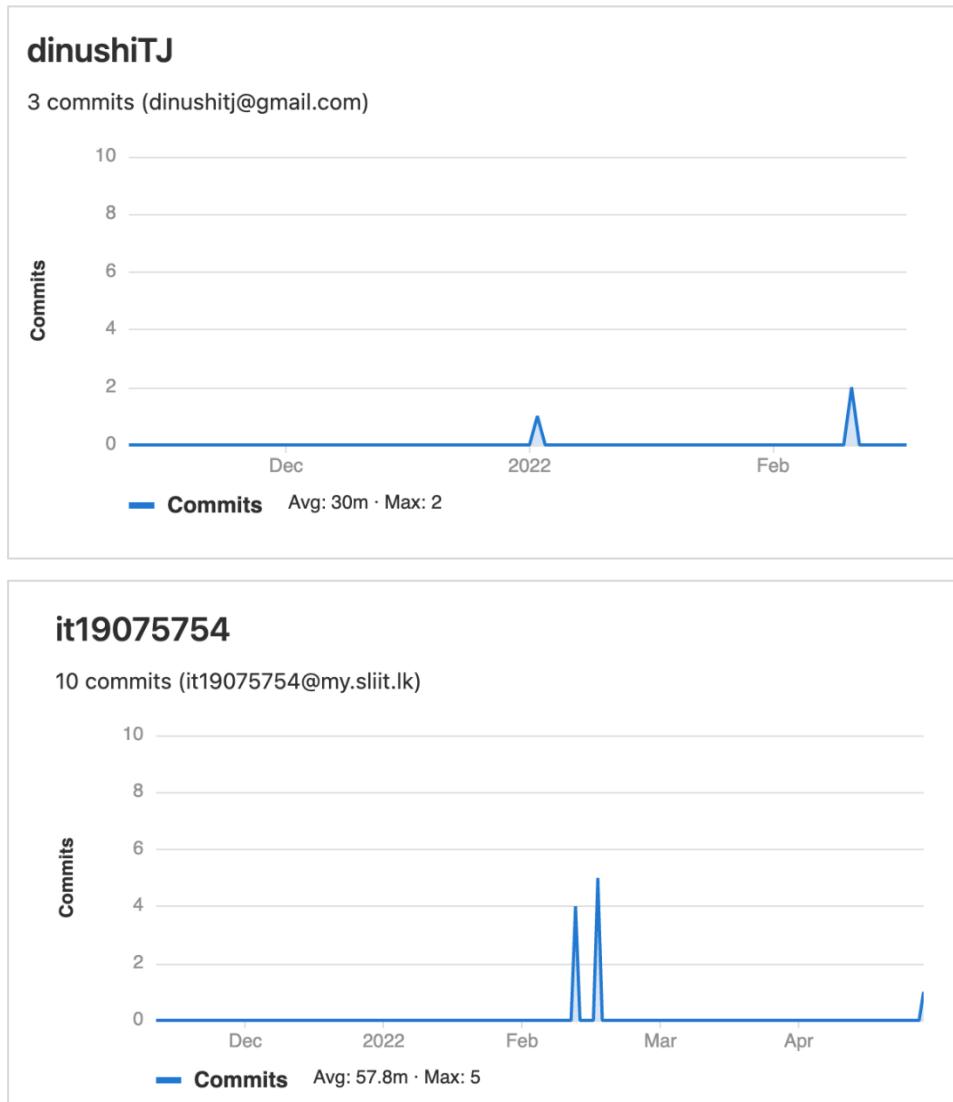


Figure 2.2. 1. GitLab commits overtime

The screenshot shows a GitLab user profile for 'Dinushi Jayasinghe'. At the top, there's a navigation bar with links for 'Projects', 'Groups', and 'More'. Below the navigation is a circular profile picture with a geometric pattern. The user's name, 'Dinushi Jayasinghe', is displayed in bold, along with their handle '@it19075754' and the text 'Member since February 21, 2022'. A small gear icon is next to the handle.

The main content area is titled 'Most Recent Activity'. It lists 20 recent events, each with a timestamp of '2 months ago'. The activities include opening merge requests, pushing code to branches like 'development-dinushi', and accepting merge requests. Some commits mention specific changes such as 'Updated kbi version to 2.0.2\*', 'implemented the initial version of language identification', and 'removed test bot files'.

Activity	Timestamp
Opened merge request #10 "Updated kbi version to 2.0.2*" at 2022-056 / 2022-056	2 months ago
Pushed to branch development-dinushi at 2022-056 / 2022-056 9e92233f · implemented the initial version of language identification	2 months ago
Pushed to branch development-dinushi at 2022-056 / 2022-056 13093293 · upgraded kbi version to 2.0.2	2 months ago
Pushed to branch development-dinushi at 2022-056 / 2022-056 883b5a8e · updated kbi 2.0.1	2 months ago
Pushed to branch development-dinushi at 2022-056 / 2022-056 56f3947b · removed test bot files	2 months ago
Pushed to branch development-dinushi at 2022-056 / 2022-056 66e86eeb · added rasa_seetm bot	2 months ago
Accepted merge request #9 "getting main bot updates" at 2022-056 / 2022-056	2 months ago
Pushed to branch development-dinushi at 2022-056 / 2022-056 c5efab78 · Merge branch 'development' into 'development-dinushi' ... and 22 more commits. Compare 874d33b4...c5efab78	2 months ago
Pushed to branch development at 2022-056 / 2022-056 1152fa82 · Merge branch 'development-dinushi' into 'development' ... and 7 more commits. Compare 2319f1d6...1152fa82	2 months ago
Opened merge request #9 "getting main bot updates" at 2022-056 / 2022-056	2 months ago
Pushed to branch development-dinushi at 2022-056 / 2022-056 874d33b4 · updated kbi to version 2.0.1. implemented dynamic script loading	2 months ago
Pushed to branch development-dinushi at 2022-056 / 2022-056 d3507b15 · updated kbi to version 1.0.1. added toast builder	2 months ago
Pushed to branch development-dinushi at 2022-056 / 2022-056 938f959a · kbi 0.0.2 added	2 months ago
Pushed to branch development-dinushi at 2022-056 / 2022-056 71cade4b · updated the test bot	2 months ago
Pushed to branch development-dinushi at 2022-056 / 2022-056 7b1f7537 · Initial version of kbi	2 months ago
Pushed to branch development-dinushi at 2022-056 / 2022-056 a270cba1 · Initial version of kbi	2 months ago

Figure 2.2. 2. GitLab recent activity

### 3. EMAILS

The following screenshots include some of the emails sent to the supervisors in charge.

#### 3.1 Supervision requesting and confirmation emails

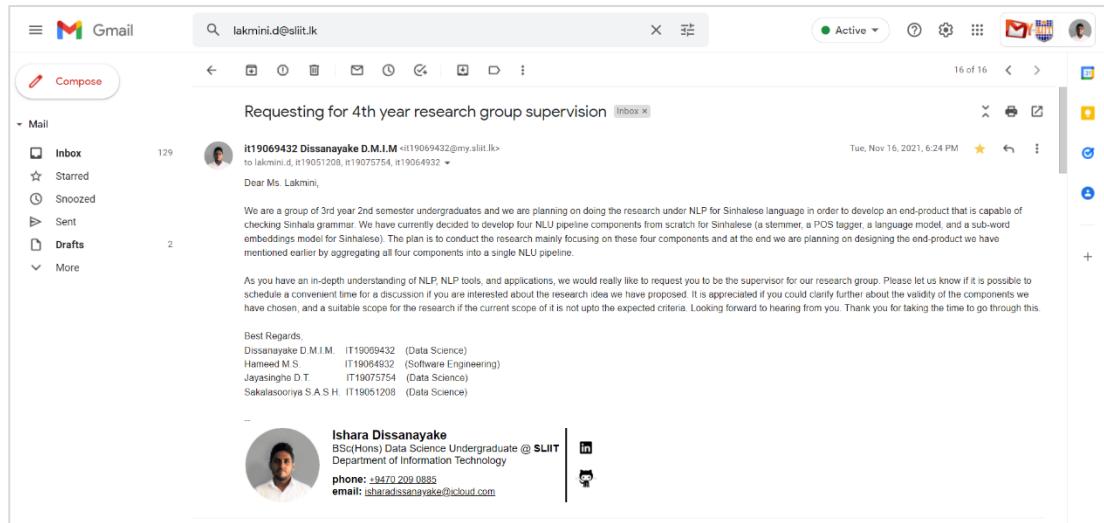


Figure 3.1. 2 Research supervision request



Figure 3.1. 1 Research project supervision confirmation

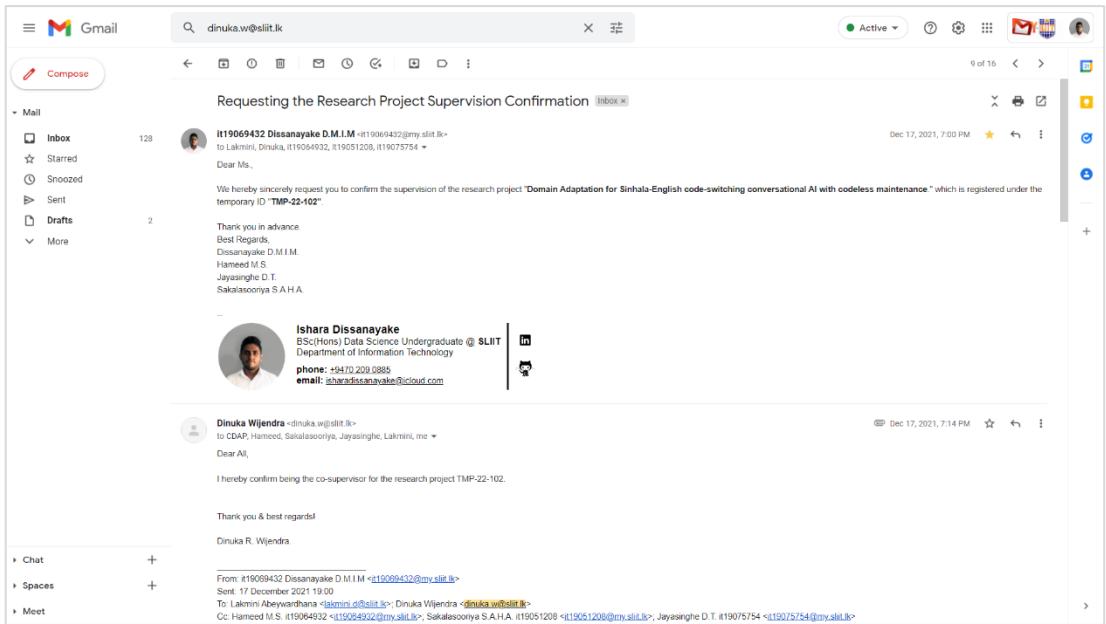


Figure 3.1. 3 Research project co-supervision request and response

### 3.2 Topic discussion meeting scheduling

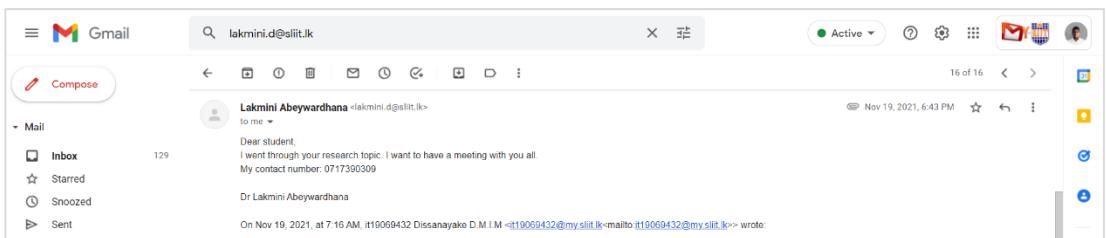


Figure 3.2. 1. Topic discussion meeting scheduling - I

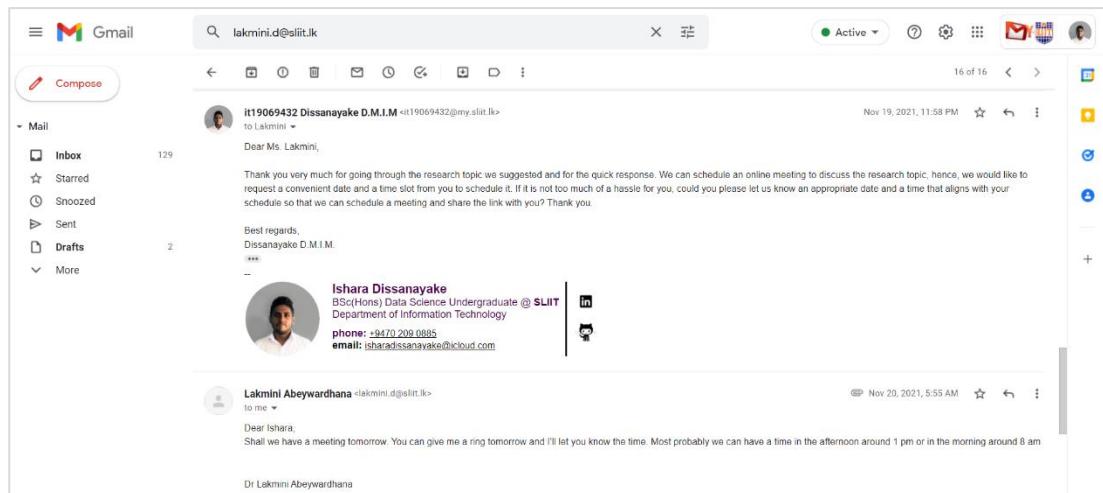


Figure 3.2. 2 Topic discussion meeting scheduling - II

### 3.3 Research proposal draft review requesting emails

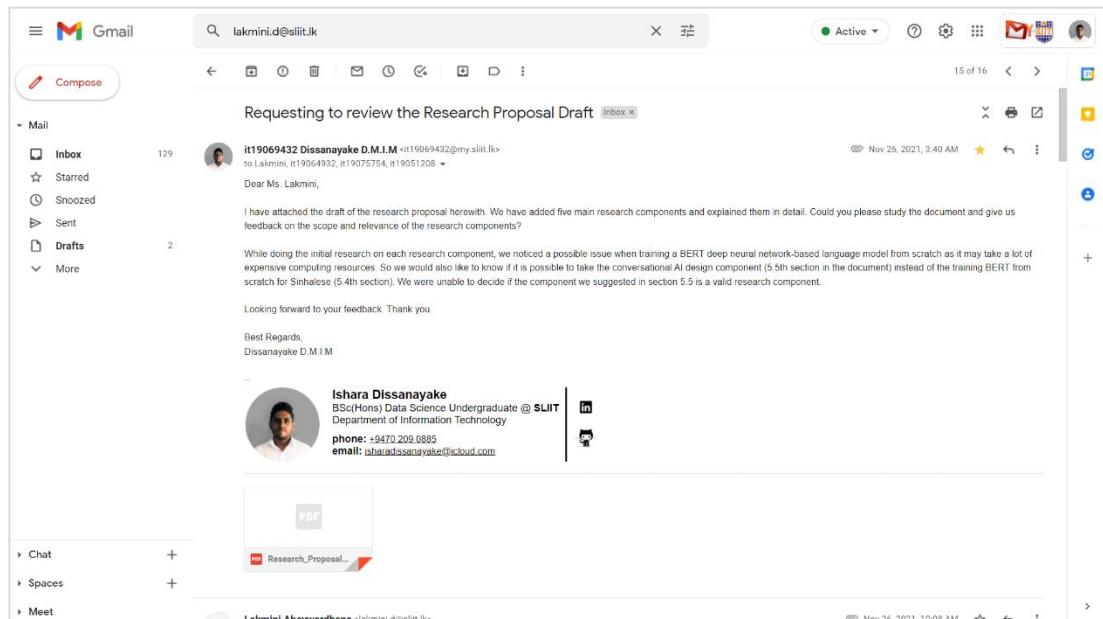


Figure 3.3. 1. Proposal drafts review request

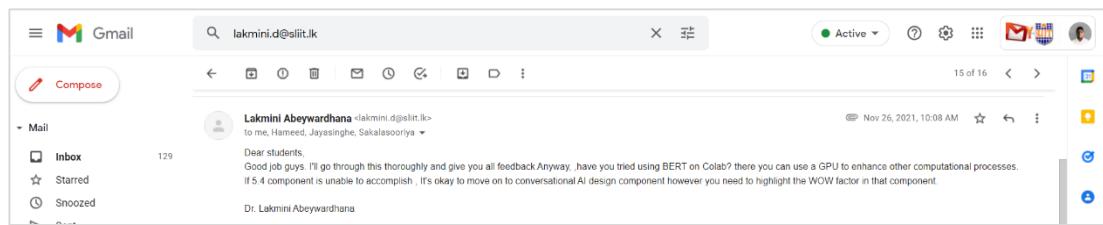


Figure 3.3. 2. Reply of the supervisor on proposal drafts review request

### 3.4 Progress discussion meeting scheduling

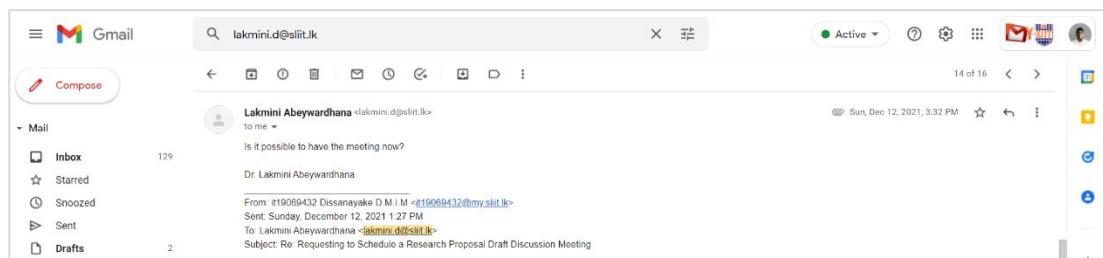


Figure 3.4. 1. Research progress discussion meeting request

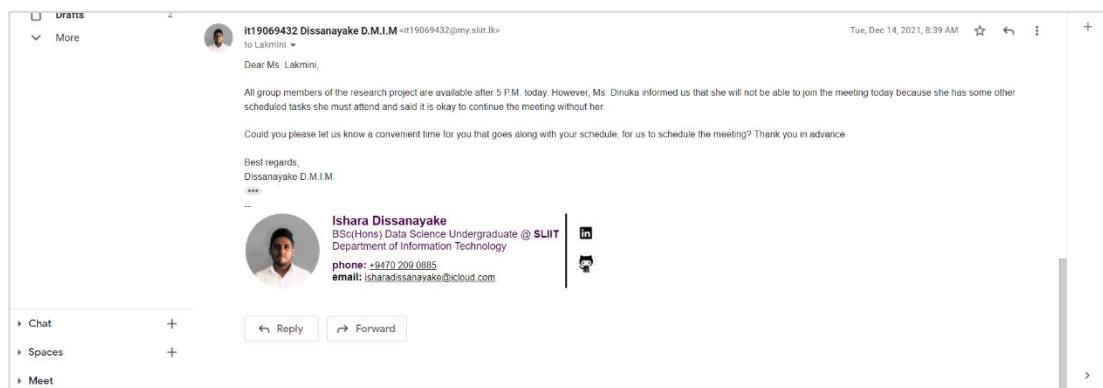


Figure 3.4. 2. Reply for the research progress discussion meeting request

### 3.5 Topic assessments form review request

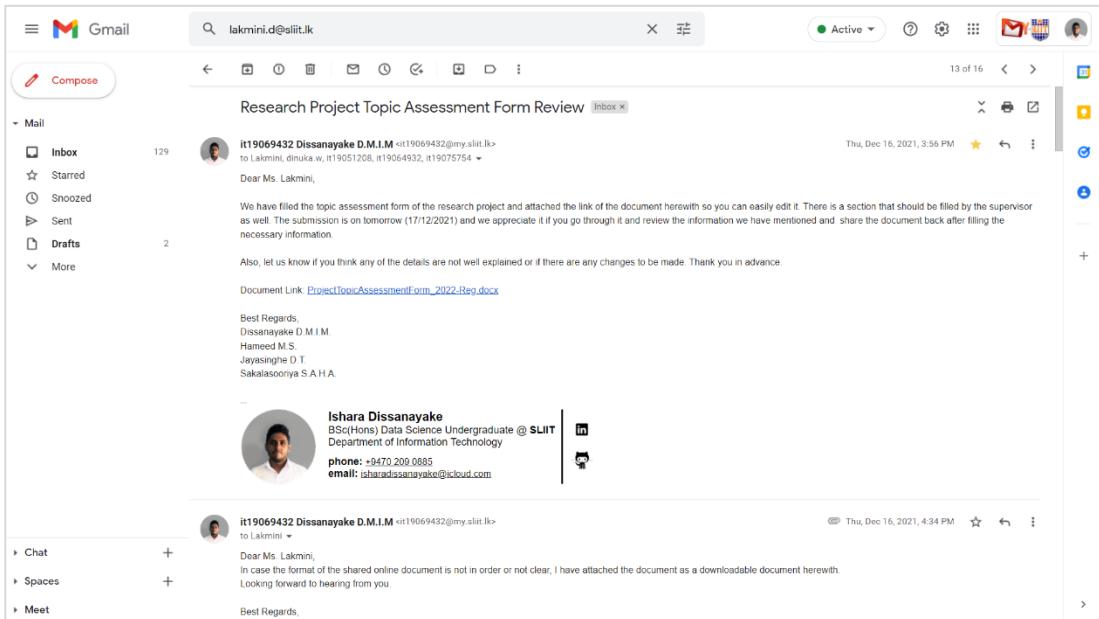


Figure 3.5. 1. Topic assessment form review request - I

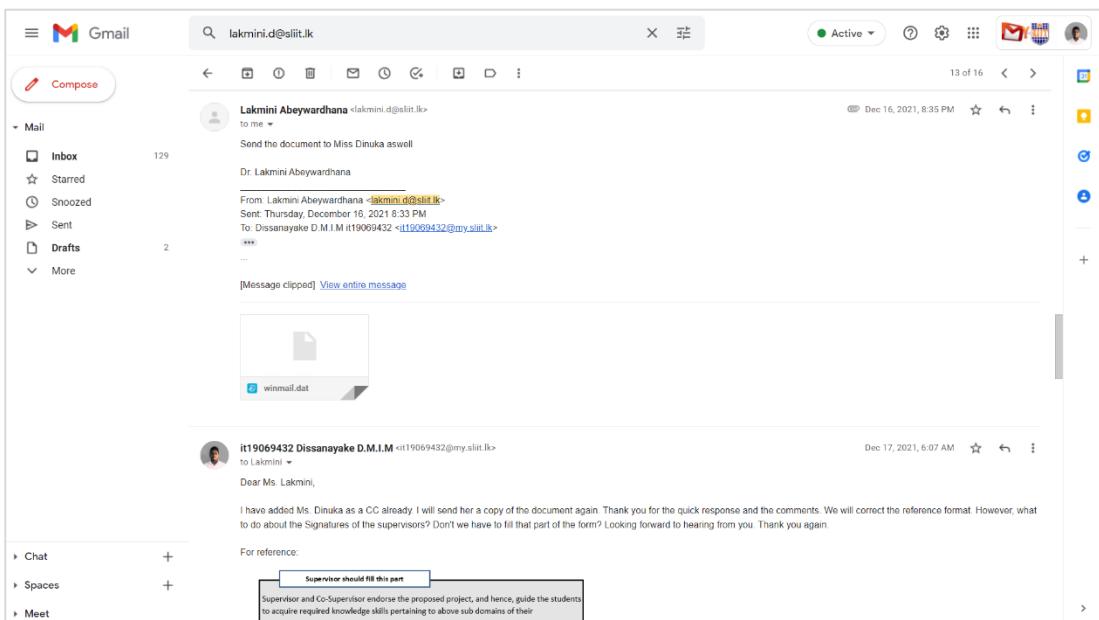


Figure 3.5. 2. Topic assessment form review -II

### 3.6 Research component changes review request

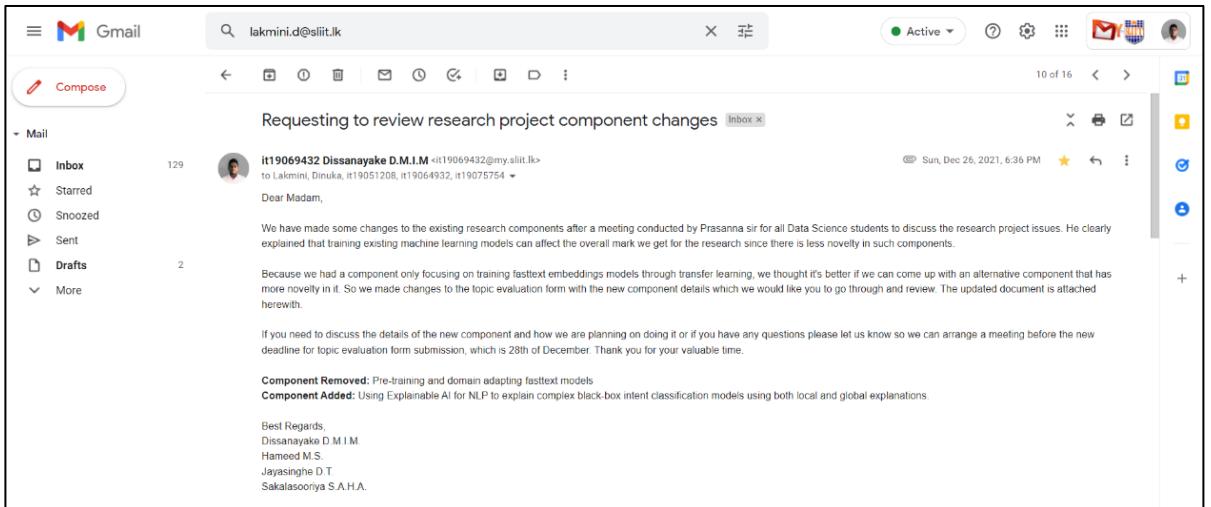


Figure 3.6. 1. Research component/component objective changes review request

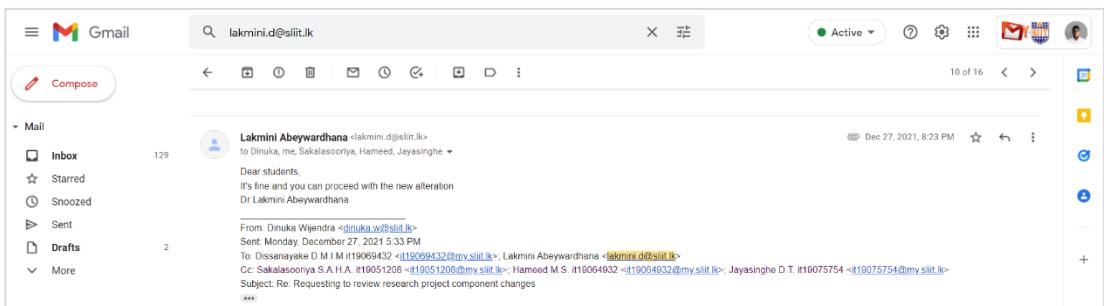


Figure 3.6. 2. Component changes approval of the supervisor

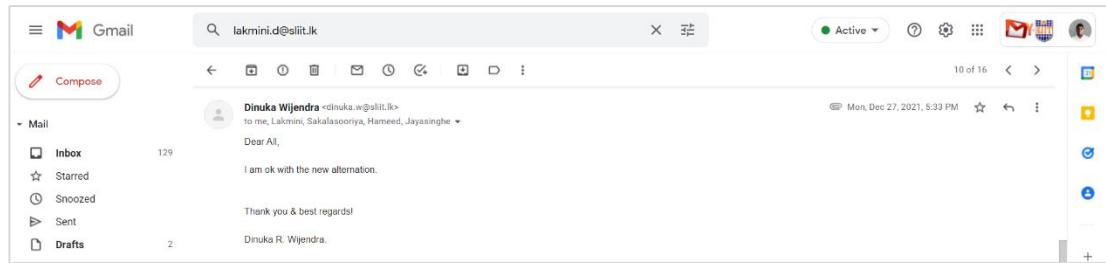


Figure 3.6. 3. Component changes approval of the co-supervisor

### 3.7 Topic changes review request after panel evaluation was done

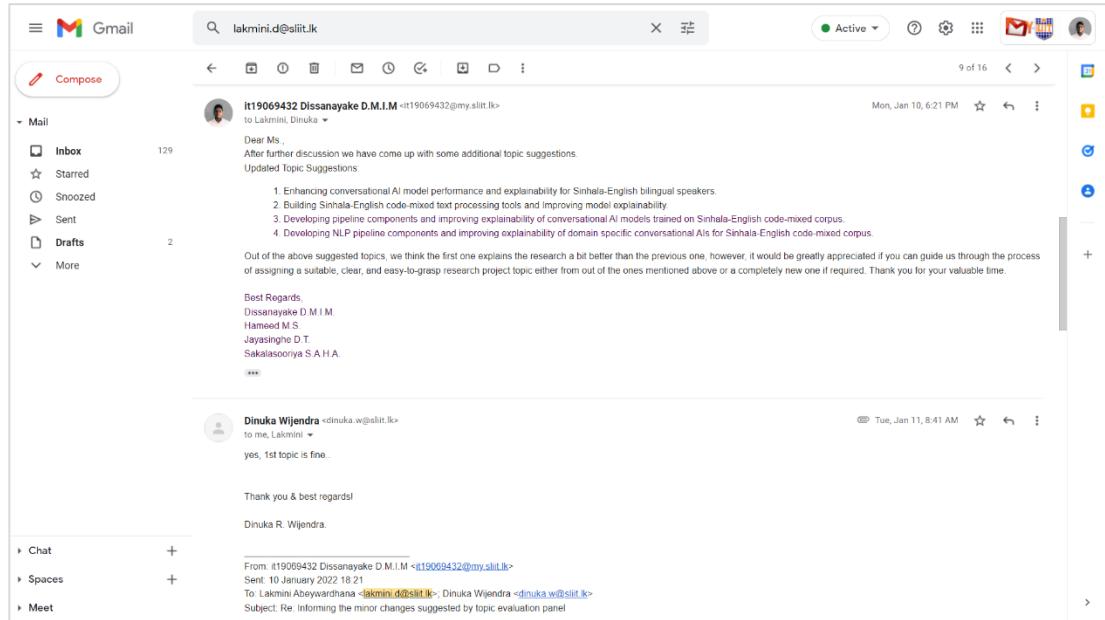


Figure 3.7. 1. Topics suggested by the members due to the suggestion made by the panel

### 3.8 Individual project proposal documents review request

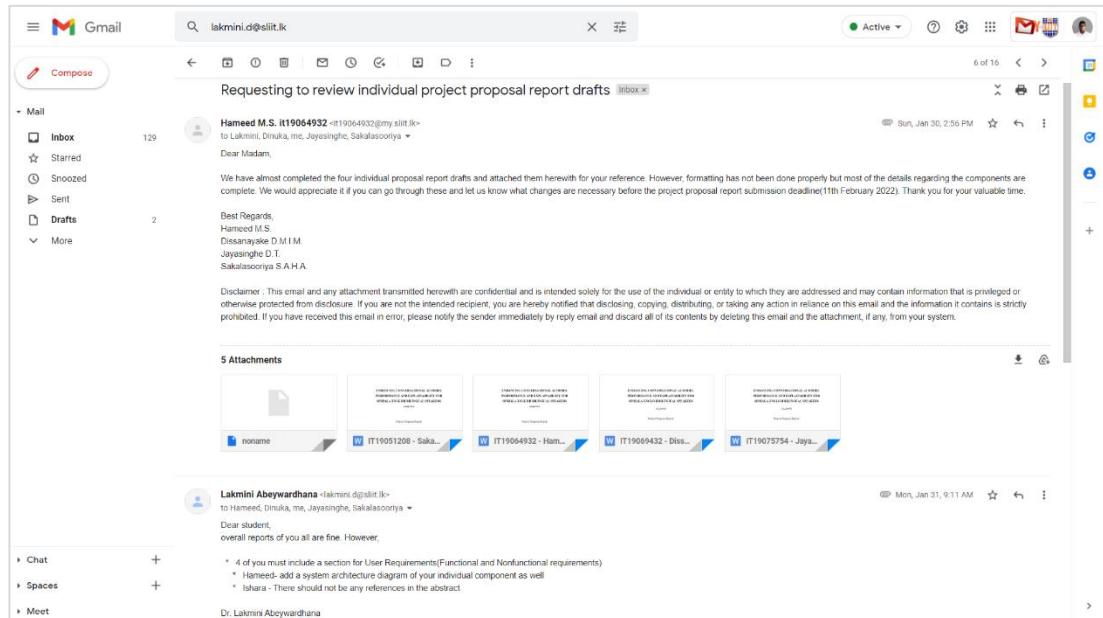


Figure 3.8. 1. Individual proposal draft review request

### 3.9 Sharing the updated proposal presentation slides deck

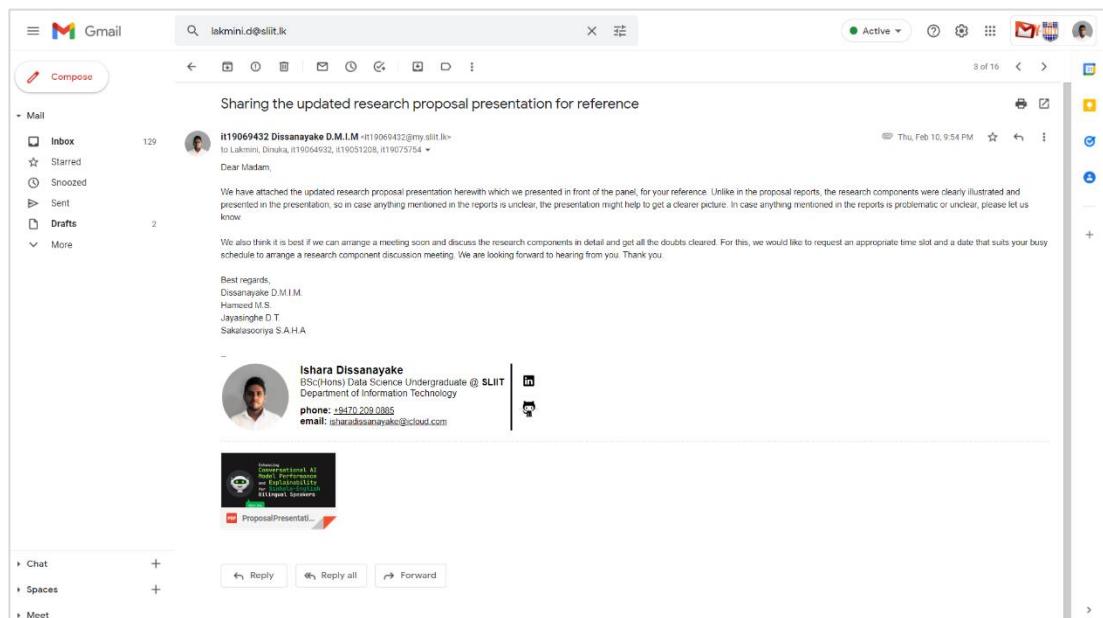


Figure 3.9. 1. Sharing the updated proposal slides deck

### 3.10 Research progress discussion meeting before progress presentation – I

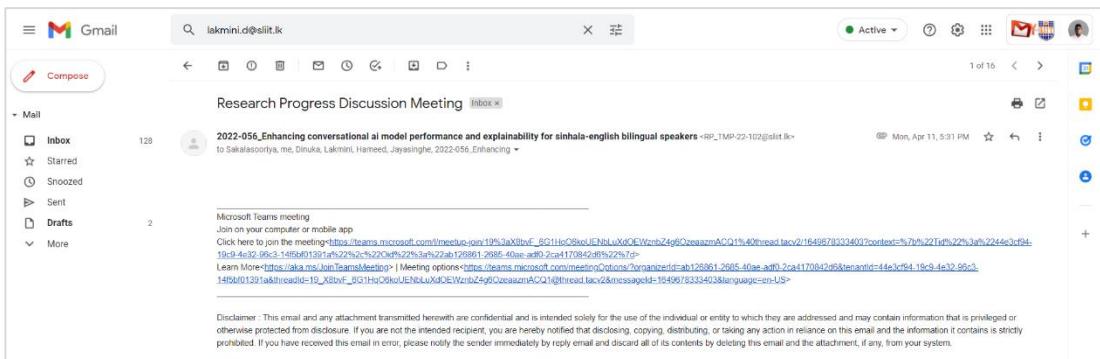


Figure 3.10. 1. 50% progress discussion meeting scheduling

## 4. GANTT CHART COMPARISON

**Error! Reference source not found.** breaks down all tasks of this individual research component under 5 main tasks. Deployment is done at the end by integrating all four

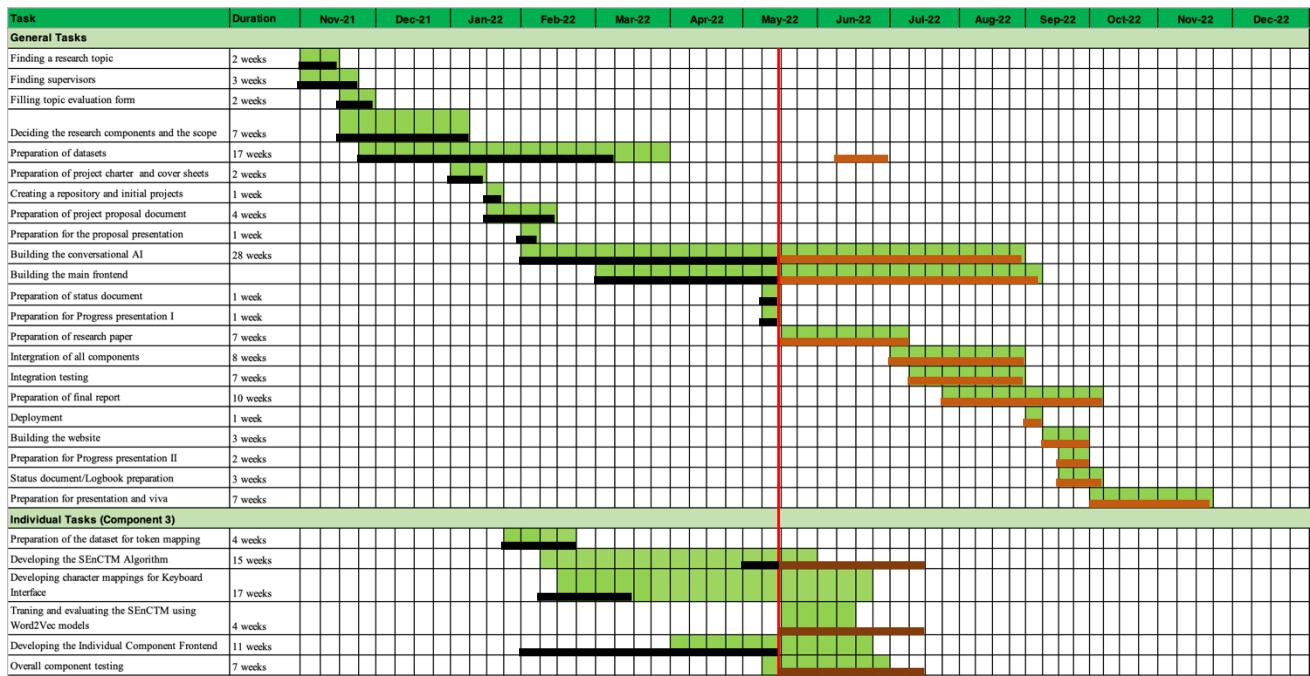


Figure 4.1 1. Predicted Gantt chart vs actual completion comparison

research components.

Legend: ■ Predicted time

■ Actual spent time

■ Remaining time for general tasks

■ Remaining time for individual tasks

## 5. WORK BREAKDOWN AND TASK STATUS

Figure 5.1 illustrates the work breakdown structure and the completion status of each task within the individual research component.

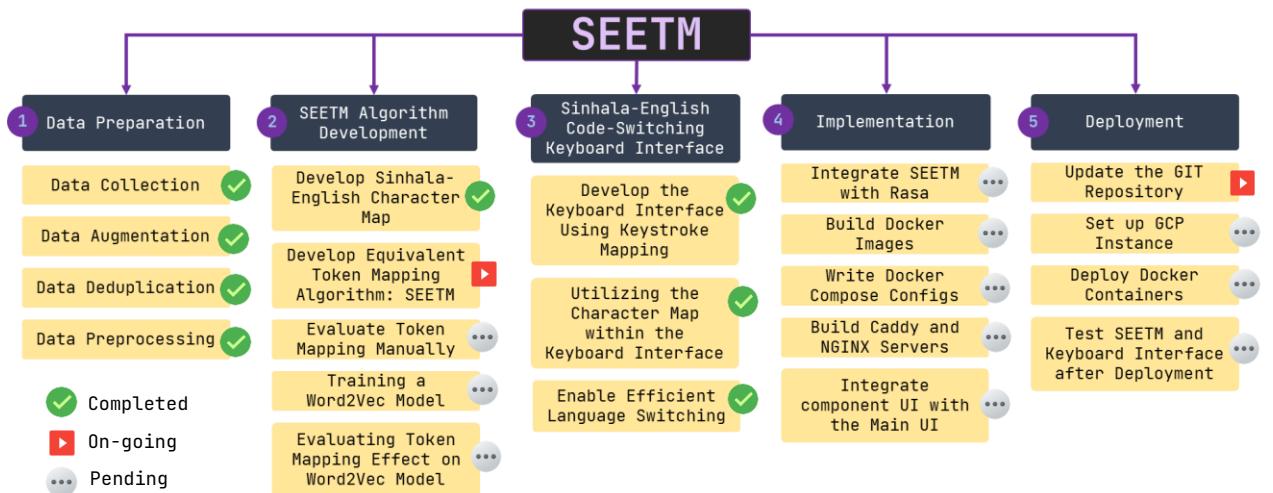


Figure 5.1. Work breakdown structure, completed, on-going and pending task indications