Sri Lanka Institute of Information Technology

R24-059

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IT21061066

Information Technology

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Project Component and Current Status

Component: ***Coconut (Copra) Quality Prediction***

Progress

In My Component, the system mainly focuses on predicting the quality of the copra based on three categories.

Copra Quality Levels:

- Level 1: Define the characteristics of "perfect condition" copra for oil production. Category - [A]
- Level 2: Specify the characteristics of "moderate" copra and its suitability for oil production. Category - [B]
- Level 3: Define the characteristics of copra considered "not most suitable" for oil production. Category - [C]

Figure 1:[A] Perfect Condition

Figure 3:[B] Moderate

Figure 2:[C] Not Suitable

Objectives

MAIN OBJECTIVES

Empower large-scale coconut oil producers to enhance productivity and product quality through accurate coconut variety identification and data-driven recommendations.

SUB OBJECTIVES

- Leveraging transfer learning for variety prediction
- Harnessing multi-modal data for robust outputs
- Sustaining performance via user-driven model updates

Prediction

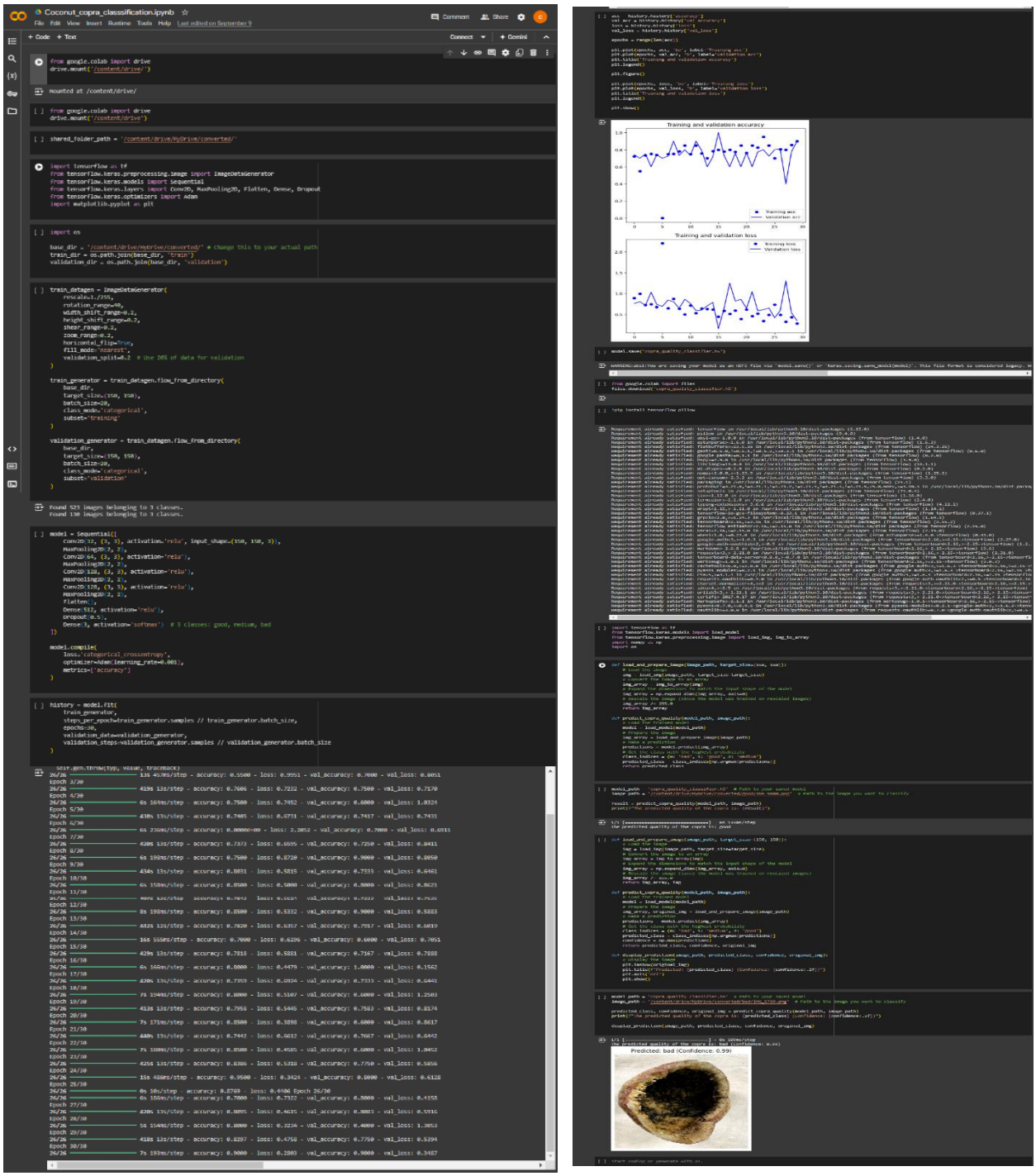
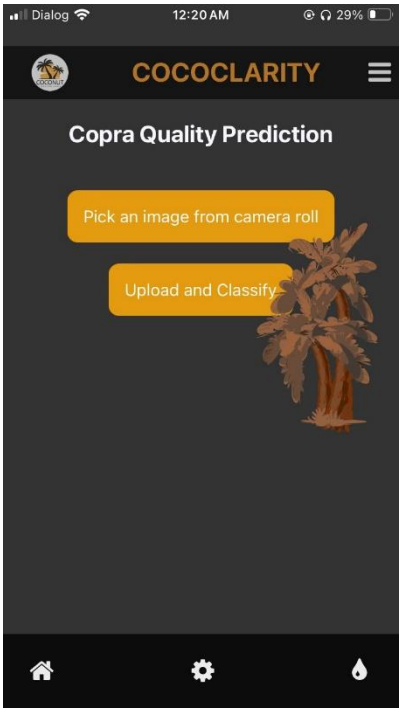
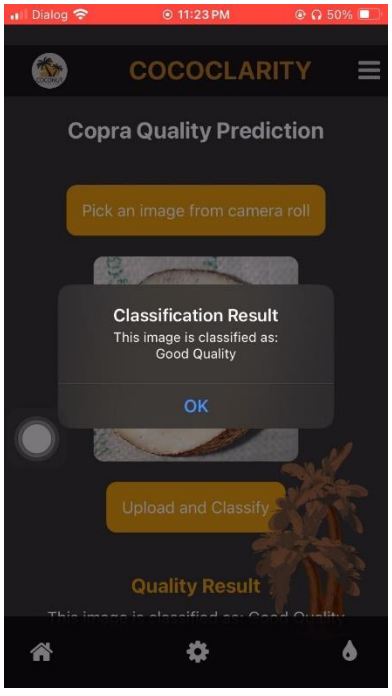
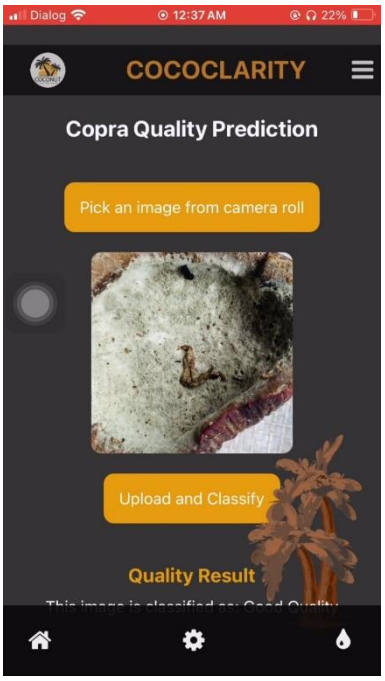


Figure 4:Prediction

UI of Copra Quality Prediction







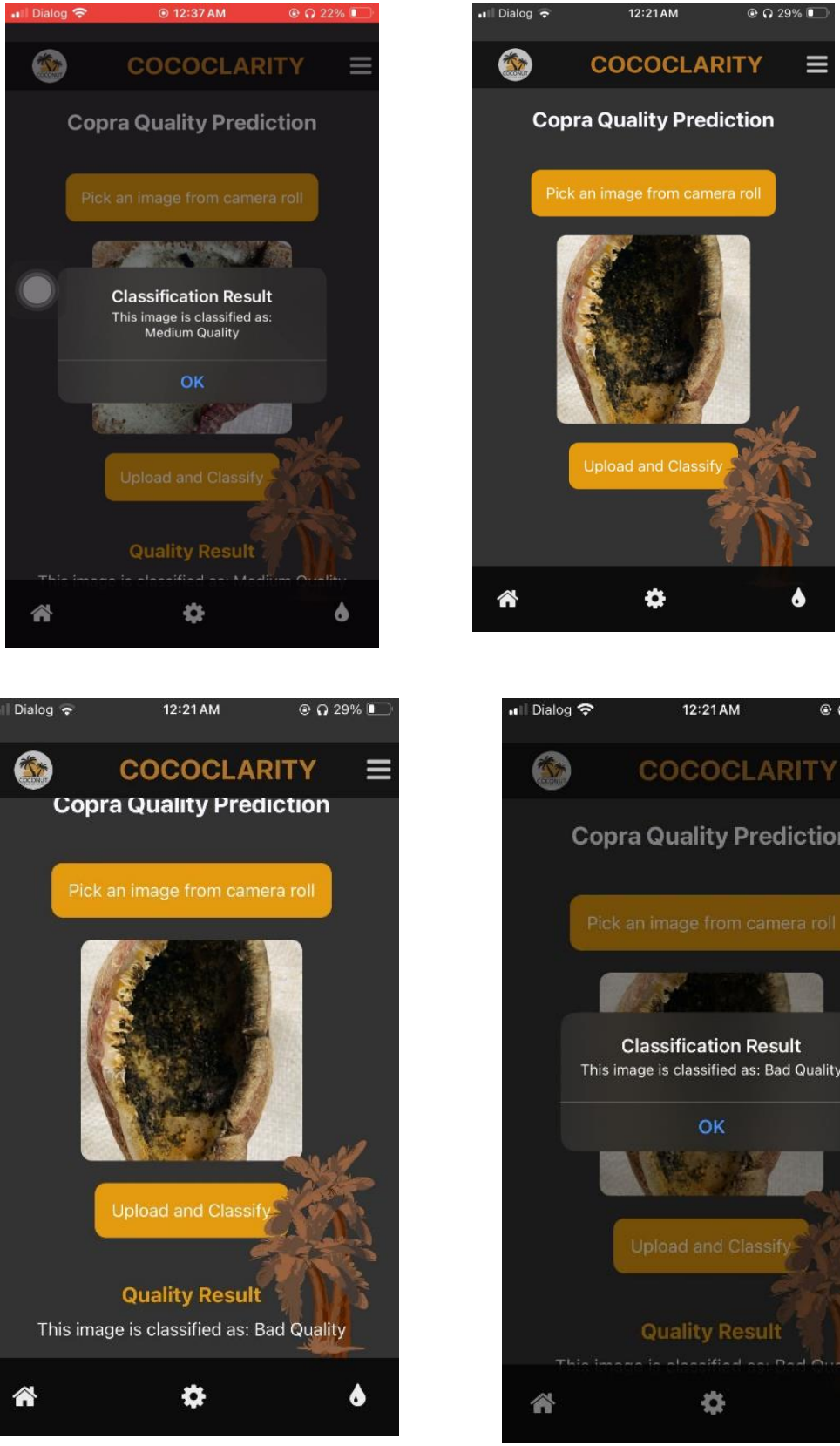

Dialog
12:37 AM
22%
COCOCLARITY
Copra Quality Prediction
Pick an image from camera roll
Classification Result
This image is classified as:
Medium Quality
OK
Upload and Classify
Quality Result
Dialog
12:21 AM
29%
COCOCLARITY
Copra Quality Prediction
Pick an image from camera roll
Upload and Classify
Dialog
12:21 AM
29%
COCOCLARITY
Copra Quality Prediction
Pick an image from camera roll
Upload and Classify
Quality Result
This image is classified as: Bad Quality
Dialog
12:21 AM
29%
COCOCLARITY
Copra Quality Prediction
Pick an image from camera roll
Classification Result
This image is classified as: Bad Quality
OK
Upload and Classify
Quality Result

Figure 5:UI

Test Cases

Test Case 1

Test Name	Successful Image Upload and Prediction
Scenario	The user successfully uploads an image and gets a prediction.
Precondition	Image picker functional, gallery access granted.
Action	1. User clicks "Pick an image". 2. User selects an image. 3. User clicks "Upload and Classify".
Expected Outcome	- Selected image is shown. - POST request sent to /classifyCopra. - Prediction result is displayed.

Test Case 2

Test Name	Upload Without Selecting an Image
Scenario	User tries to upload without selecting an image.
Precondition	"Upload and Classify" button enabled only when an image is selected.
Action	User clicks "Upload and Classify" without selecting an image.

Expected Outcome	- No POST request. - Alert: "No image selected".

Test Case 3

Test Name	Invalid Image Type Handling
Scenario	User tries to upload an invalid image format.
Precondition	System only accepts valid image formats (jpeg, png).
Action	1. User selects an invalid file. 2. User clicks "Upload and Classify".
Expected Outcome	- No POST request. - Alert: "Invalid file format".

Test Case 4

Test Name	Error During Prediction API Request
Scenario	API request to classify the image fails.
Precondition	Network or server issue.
Action	1. User selects an image. 2. API request fails (e.g., network or server error).
Expected Outcome	- Alert: "Error: Failed to classify the image". - "Upload and Classify" button is re-enabled.

Team Communication

The team chose Microsoft Teams as their primary communication channel, forming a dedicated Team with all four group members. We also used Zoom to communicate with supervisors, provide updates, and receive comments on the project's progress. Regular team conversations were arranged to discuss, share knowledge, and plan.

The crew also used WhatsApp as an additional tool to constantly communicate with their supervisors. This enabled timely updates and cooperation between the supervisor and co-supervisor, ensuring everyone was informed and on the same page throughout the project.

Teams Channel

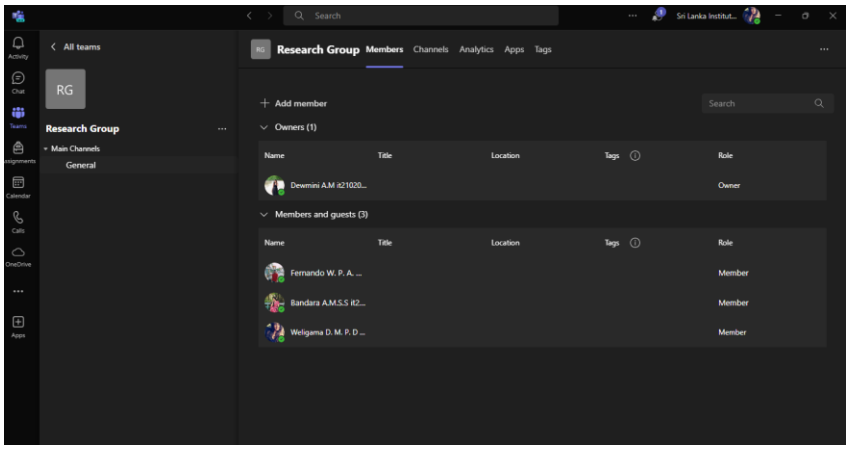
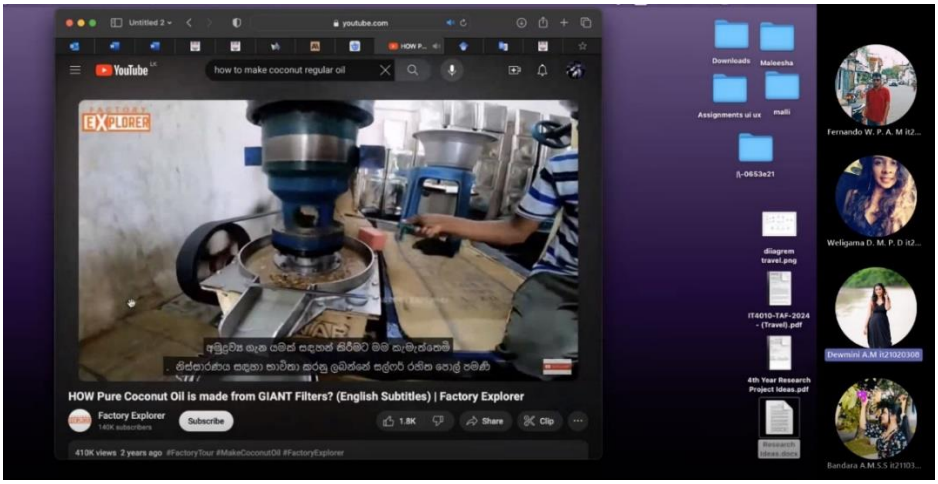
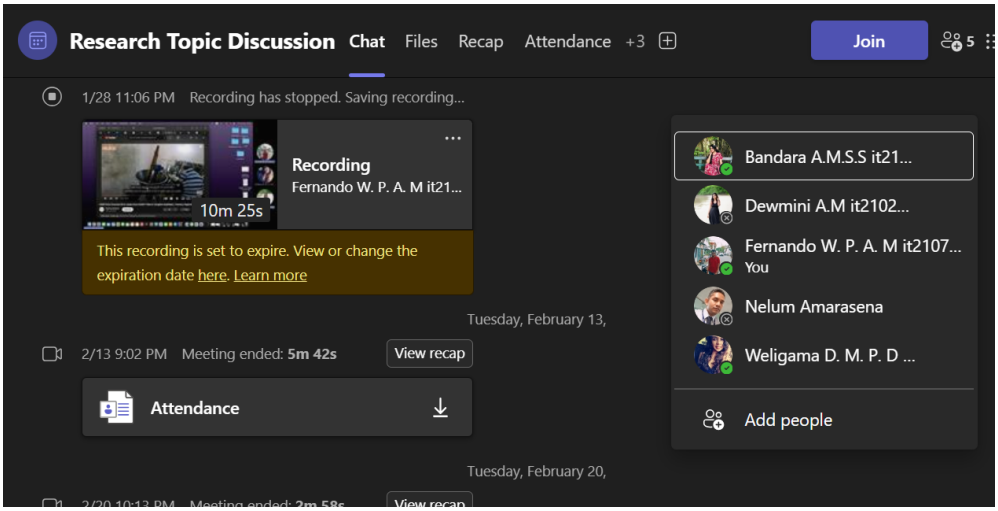
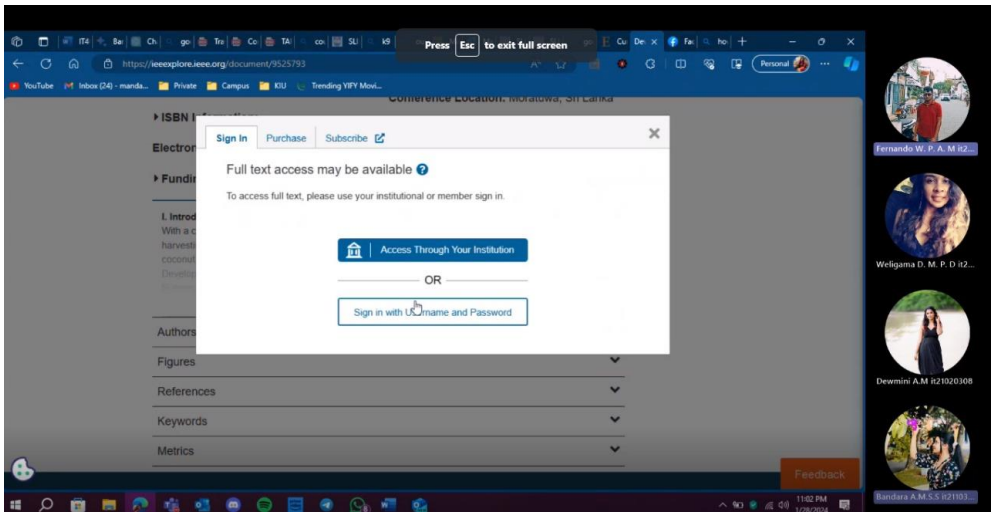


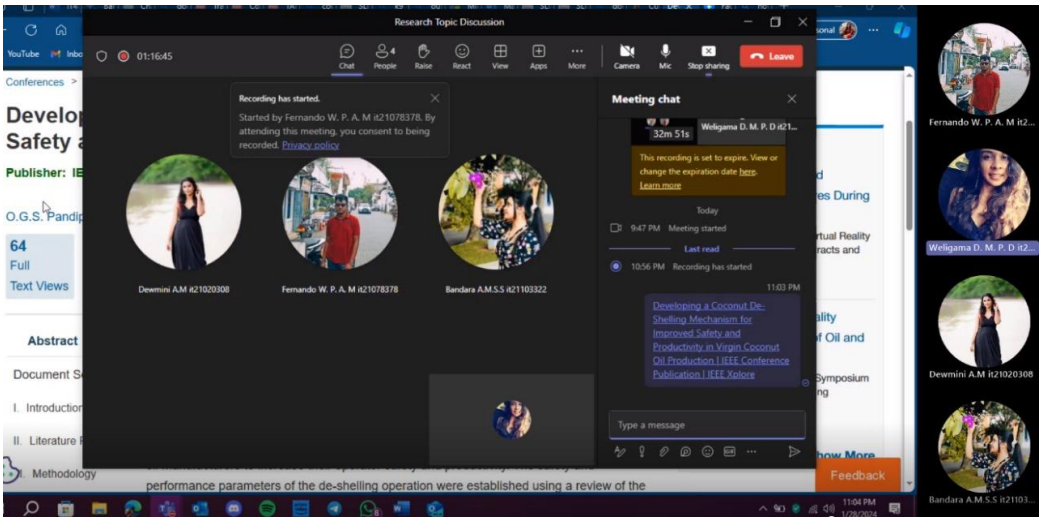
Figure 6:Teams channel

Teams Calls with the Research Team









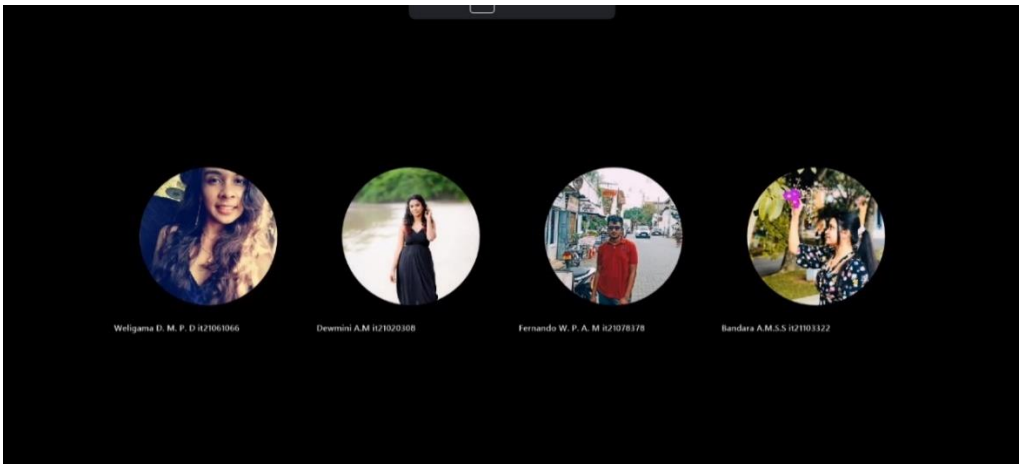
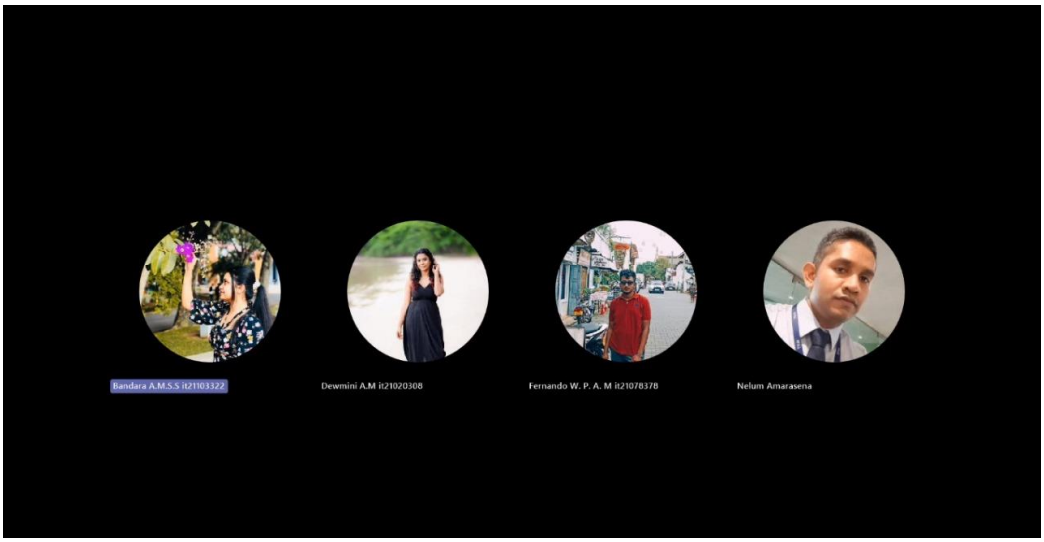
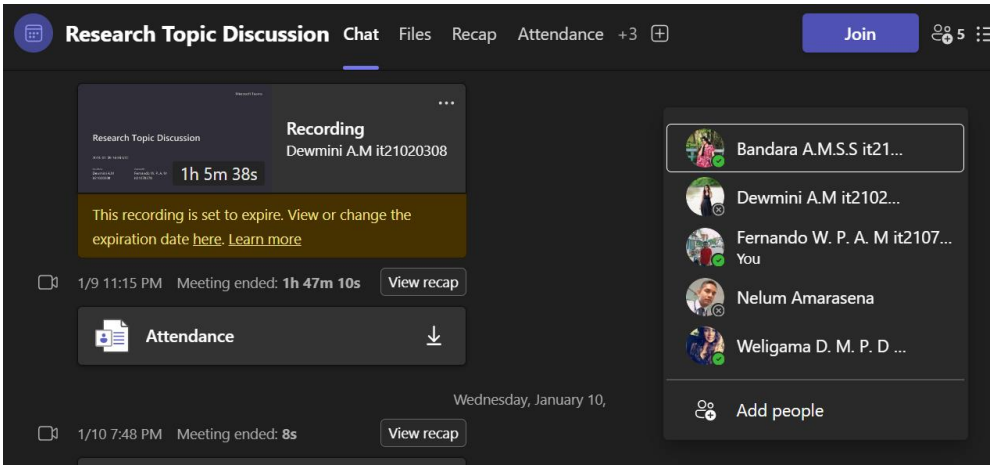
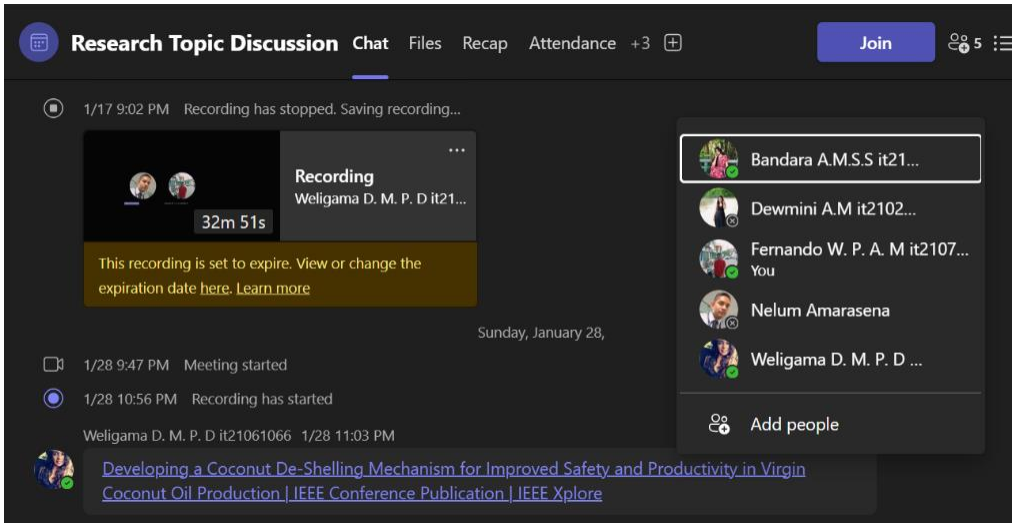


Figure 7:Teams Calls with the Research Team

Online Calls with Supervisors (Teams)







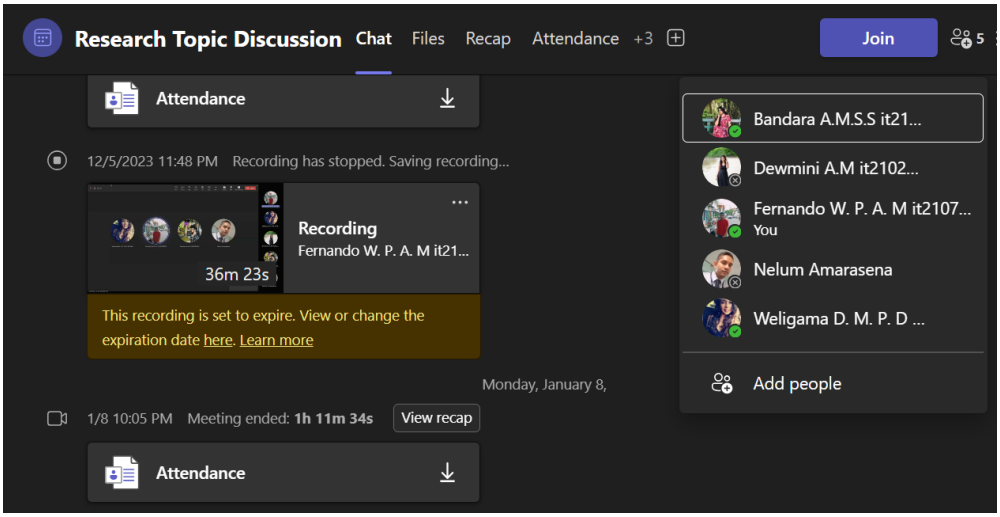


Figure 8:Teams Calls with Supervisor

Phone Calls with External Supervisor

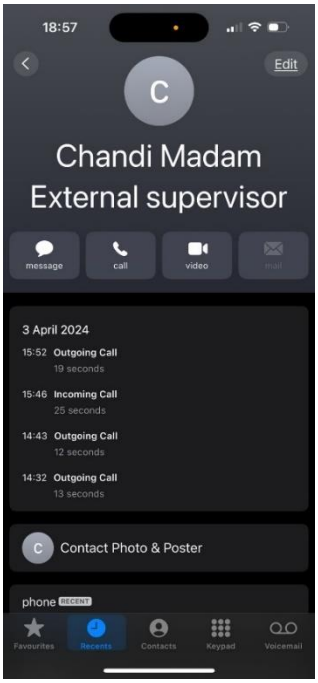
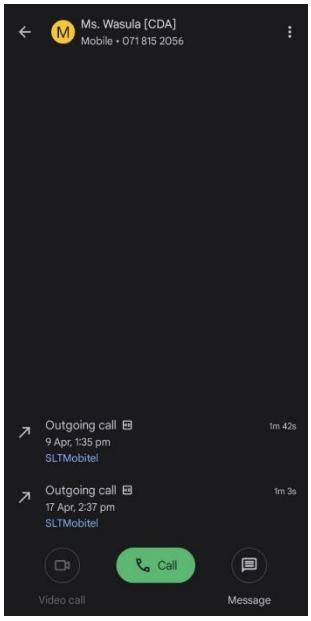
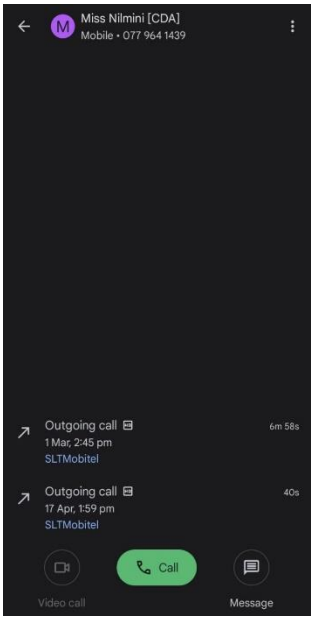
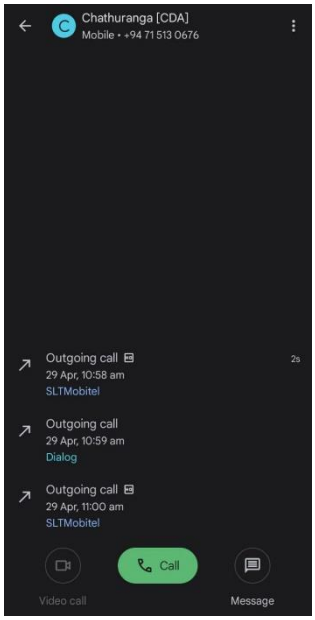


Figure 9: Phone Calls with External Supervisor

Phone Calls with CDA Officers







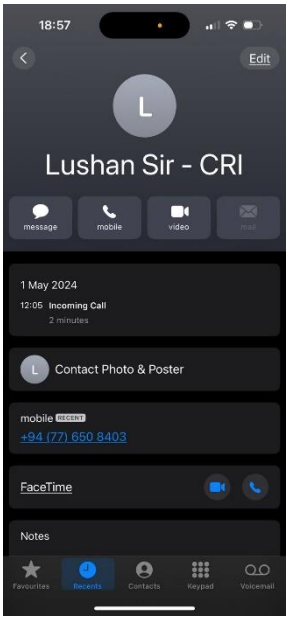


Figure 10; Phone Calls with CDA Officers

Data Collection (Field Visit)

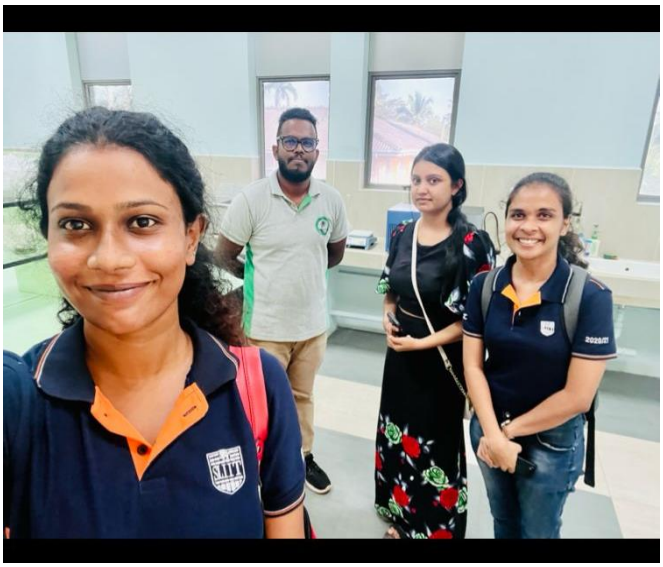
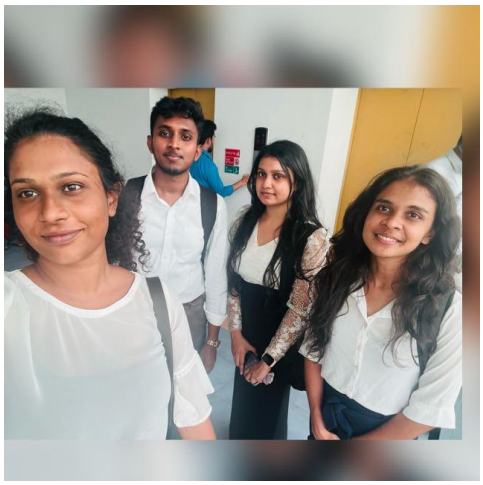


Figure 11:Field Visit

Physical Meetings with Group Members



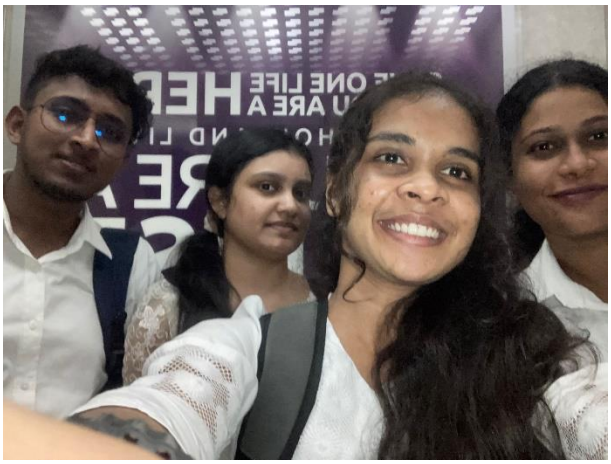
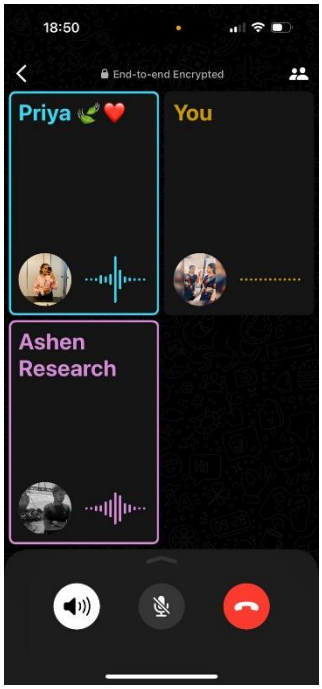


Figure 12:Physical meetings with team

WhatsApp Group Creation



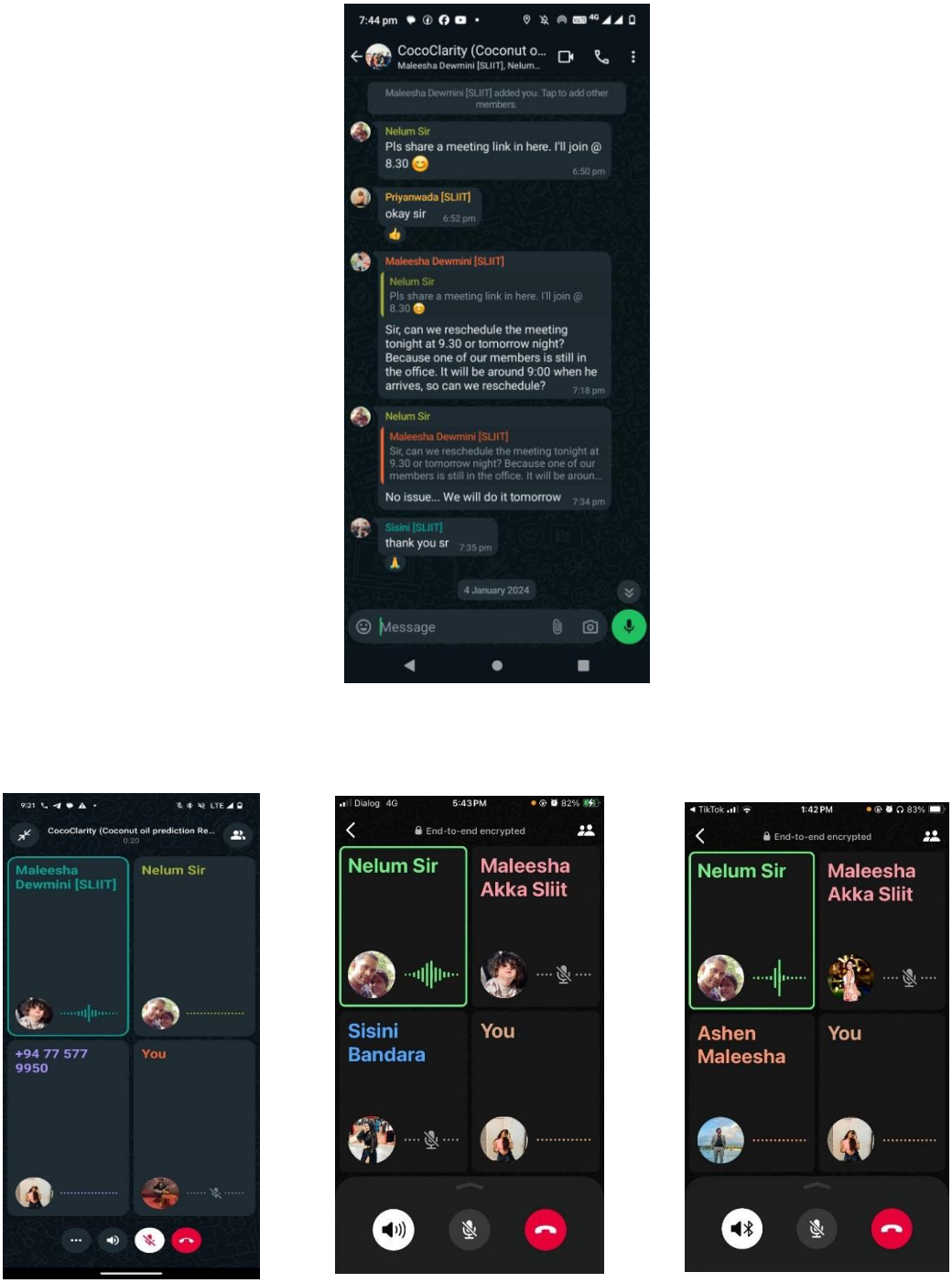
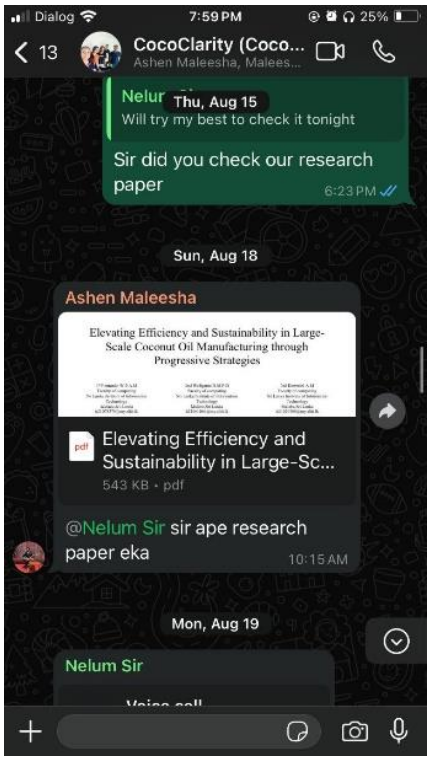
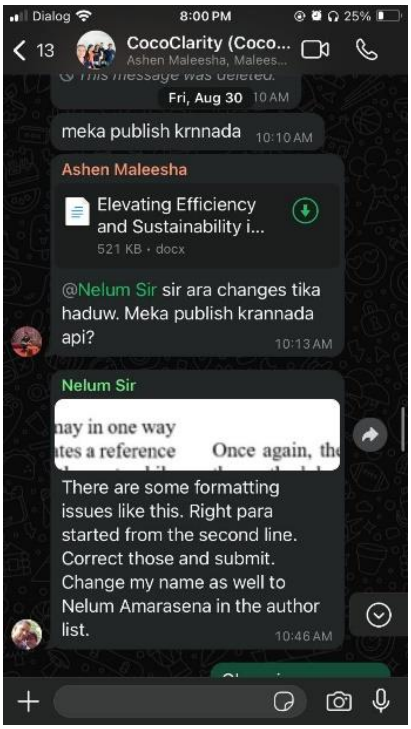
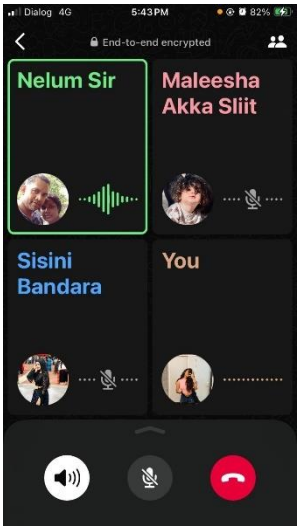


Figure 13:WhatsApp Group Creation and Calls

Research Paper Approval







Project Timeline

A Gantt chart is a visual tool used in project management to show the timeline of a project. It displays the start and finish dates of the various elements of a project, such as tasks, milestones, and phases, as well as their dependencies.

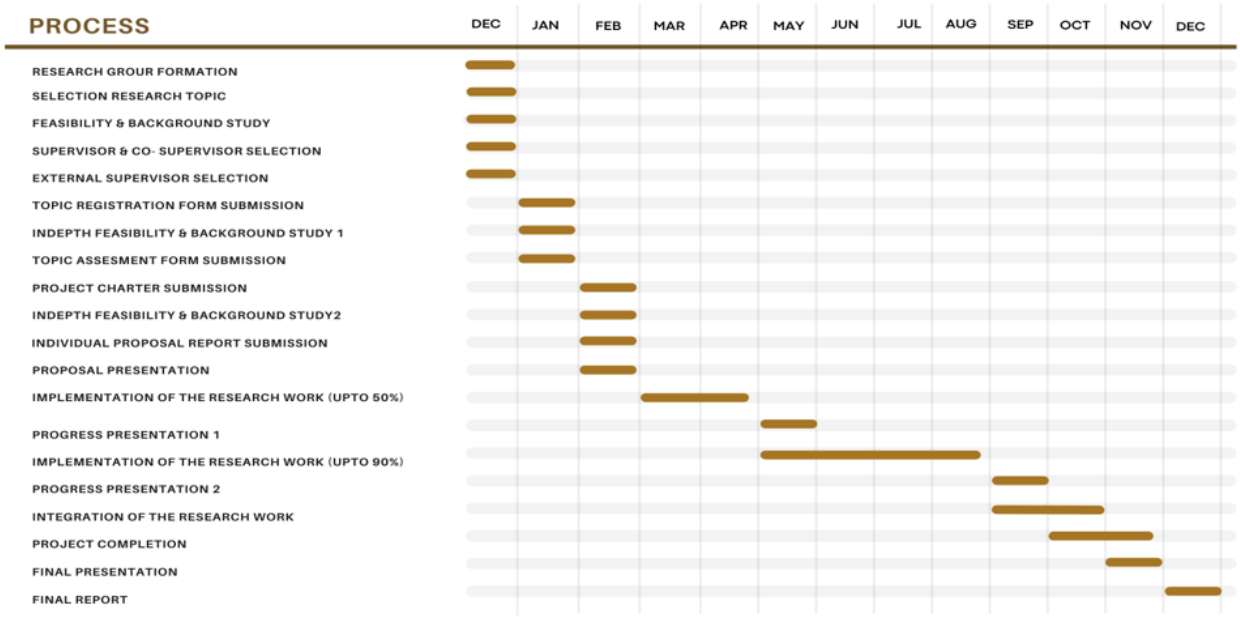


Figure 14: Gantt Chart

Work Break-Down

A work breakdown structure (WBS) is a structured breakdown of a project into smaller, more manageable parts. It is divided into distinct deliverables and tasks that help streamline project planning, execution and project management.

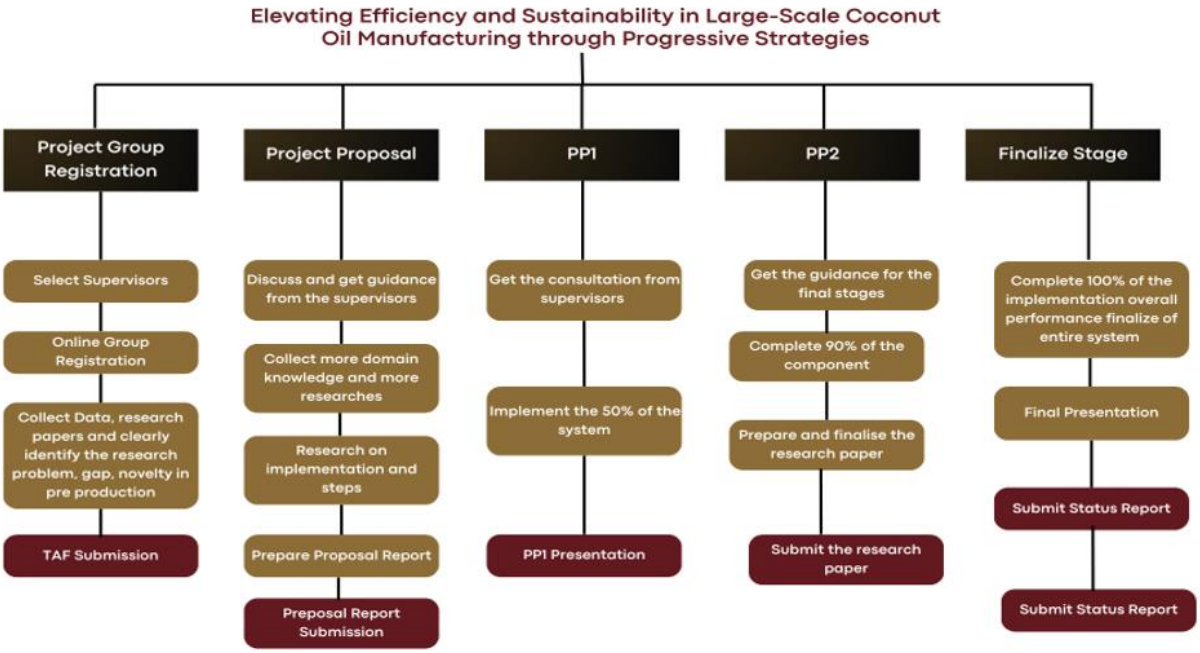


Figure 15:Work Break Down Chart