



**REVOLUTIONIZING REMOTE HEALTH MONITORING:
AUTONOMOUS DETECTION OF CARDIAC ABNORMALITIES
WITH CUSTOMIZED DIETARY PLANNING**

R24-019

Status Document 1

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1. SCREENSHOTS OF THE PROJECT MANAGEMENT TOOL

This screenshot shows a project management tool interface for 'CardioFit AI'. The main view is a 'List' view with the following columns: Task name, Assignee, Due date, Blocked By (dropdown), Blocking (dropdown), Priority, and Status.

- To do:**
 - Make test cases - Use Testing tools (Test Driven Development) (Due: 27 Apr)
 - Check on the data security side of the application (Due: 17 - 25 Jan, Blocked by: Enhance...)
 - Check firebase database (real time or firestore and make the config) (Due: 21 - 23 Jan)
 - WSA Competition (Due: 27 Jan)
- Doing:**
 - Update about the technical Stack (Due: 15 - 22 Jan, Priority: High, Status: On track)
 - Finalize the technology requirement of taking ECG measure from I (Due: 20 - 27 Jan, Blocked by: Use D..., Priority: High)
 - Finalize the technology requirement for 3D Visualization (Due: 27 Jan, Priority: High)
 - Finalize the technology requirement to make Simulation of x-ray (Due: 20 - 27 Jan, Priority: High)
- Done:**
 - Make Presentation Slide Deck for Topic Evaluation (Assignee: po, Due: 15 Jan, Priority: High, Status: At risk)
 - Research Topic Evaluation (Assignee: po, Due: 19 Jan, Blocked by: Make Pre..., Priority: Low, Status: On track)
 - Make Github Repositories (Assignee: po, Due: 20 Jan, Priority: Medium)
 - Create Firebase Project (Assignee: po, Due: 20 Jan, Priority: Medium)
 - Modify the Topic Assessment Form (Assignee: po, Due: 20 - 21 Jan, Blocked by: Show the m..., Priority: Medium)
 - Show the modified TAF to Supervisors (Assignee: po, Due: 21 Jan, Blocked by: Modify t..., Priority: Medium)
 - Start Development** (Due: 27 Jan - 27 Apr)
 - Make Project Charter (Assignee: po, Due: 19 - 22 Jan, Blocked by: Show the Pr..., Priority: High, Status: On track)
 - Show the Project Charter to the Supervisors (Assignee: po, Due: 22 Jan, Blocked by: Make Pr..., Priority: Medium)
 - Proposal Project Report Draft (Assignee: po, Due: 26 - 29 Jan, Blocked by: Proposal Pre..., Priority: Medium)
 - Proposal Presentation Slides (Assignee: po, Due: 26 - 29 Jan, Blocked by: Proposal Pre..., Priority: Medium)
 - Proposal Presentation (Assignee: po, Due: 5 Feb, Blocked by: Proposal ..., Priority: Medium)
 - Get the ECG reading to flutter application (Assignee: po, Due: 6 - 9 Feb, Blocked by: Find Alig..., Priority: Medium)
 - Pass the ECG pattern obtained to flutter application (Assignee: po, Due: 8 - 11 Feb, Blocked by: Pass the 12 ..., Priority: Medium)

Figure 1: Asana Task list 1

This screenshot shows a project management tool interface for 'CardioFit AI'. The main view is a 'List' view with the following columns: Task name, Assignee, Due date, Blocked By (dropdown), Blocking (dropdown), Priority, and Status.

- Done:**
 - Make Presentation Slide Deck for Topic Evaluation (Assignee: po, Due: 15 Jan, Priority: High, Status: At risk)
 - Research Topic Evaluation (Assignee: po, Due: 19 Jan, Blocked by: Make Pre..., Priority: Low, Status: On track)
 - Make Github Repositories (Assignee: po, Due: 20 Jan, Priority: Medium)
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 - Modify the Topic Assessment Form (Assignee: po, Due: 20 - 21 Jan, Blocked by: Show the m..., Priority: Medium)
 - Show the modified TAF to Supervisors (Assignee: po, Due: 21 Jan, Blocked by: Modify t..., Priority: Medium)
 - Start Development** (Due: 27 Jan - 27 Apr)
 - Make Project Charter (Assignee: po, Due: 19 - 22 Jan, Blocked by: Show the Pr..., Priority: High, Status: On track)
 - Show the Project Charter to the Supervisors (Assignee: po, Due: 22 Jan, Blocked by: Make Pr..., Priority: Medium)
 - Proposal Project Report Draft (Assignee: po, Due: 26 - 29 Jan, Blocked by: Proposal Pre..., Priority: Medium)
 - Proposal Presentation Slides (Assignee: po, Due: 26 - 29 Jan, Blocked by: Proposal Pre..., Priority: Medium)
 - Proposal Presentation (Assignee: po, Due: 5 Feb, Blocked by: Proposal ..., Priority: Medium)
 - Get the ECG reading to flutter application (Assignee: po, Due: 6 - 9 Feb, Blocked by: Find Alig..., Priority: Medium)
 - Pass the ECG pattern obtained to flutter application (Assignee: po, Due: 8 - 11 Feb, Blocked by: Pass the 12 ..., Priority: Medium)

Figure 2: Asana list 2

CardioFit AI

Task name

Task name	Assignee	Due date	Blocked By ...	Blocking (D...)	Priority	Status
Pass the ECG pattern to web application interface	(User)	8 – 20 Feb				

Add task...

Competition

APICTA Competition Timeline Check	(User)	1 Jun – 1 Jul				
NBOSA Time Line	(User)	(Empty)				
Esvabamani	(User)	15 Feb – 6 Apr				
ICT Innovative Service Awards	(User)	1 Jul – 1 Nov				

Add task...

Cardiac To-do

Use Dry electrodes and get ECG by hands	(User)	27 – 30 Jan	Finalize t...	Find Algorith...		
Find Algorithms to take 6 lead ECG and later improve to 12	(User)	31 Jan – 4 Feb	Use Dry ...	Get the ECG ...		
Pass the 12 lead ECG pattern to the web application	(User)	10 – 12 Feb	Get the E...	Enhance the ...		
Enhance the user interfaces of mobile app and web app	(User)	13 – 16 Feb	Pass the ...	Check on the...		
Learn how to get facial data by scanning the face	(User)	27 – 30 Jan	Finalize t...	Generating E...		

Figure 3: Asana list 3

To do 4

- Make test cases - Use Testing tools (Test Driven Development)
- Blocked By (Dependencies)
- Blocking (Dependencies)
- Priority
- Status
- 27 Apr

Doing 4

- Update about the technical Stack
- Blocked By (Dependencies)
- Blocking (Dependencies)
- High
- On track
- 15 – 22 Jan

- Finalize the technology requirement of taking ECG measure from Hand and Facial recognition
- Blocked By (Dependencies)
- Use Dry elect...
- Learn how to ge...
- High
- On track
- 20 – 27 Jan

Done 15

- Make Presentation Slide Deck for Topic Evaluation
- Blocked By (Dependencies)
- Research Topic Evaluation
- High
- At risk
- po 15 Jan

- Research Topic Evaluation
- Make Presentation Slide Deck for T...
- Blocking (Dependencies)
- Low
- On track
- po 19 Jan

Competition 4

- APICTA Competition Timeline Check
- Blocked By (Dependencies)
- Blocking (Dependencies)
- Priority
- Status
- 1 Jun – 1 Jul

- NBOSA Time Line
- Blocked By (Dependencies)
- Blocking (Dependencies)
- Priority
- Status
- (Empty)

- Esvabamani

Figure 4: Asana project board 1

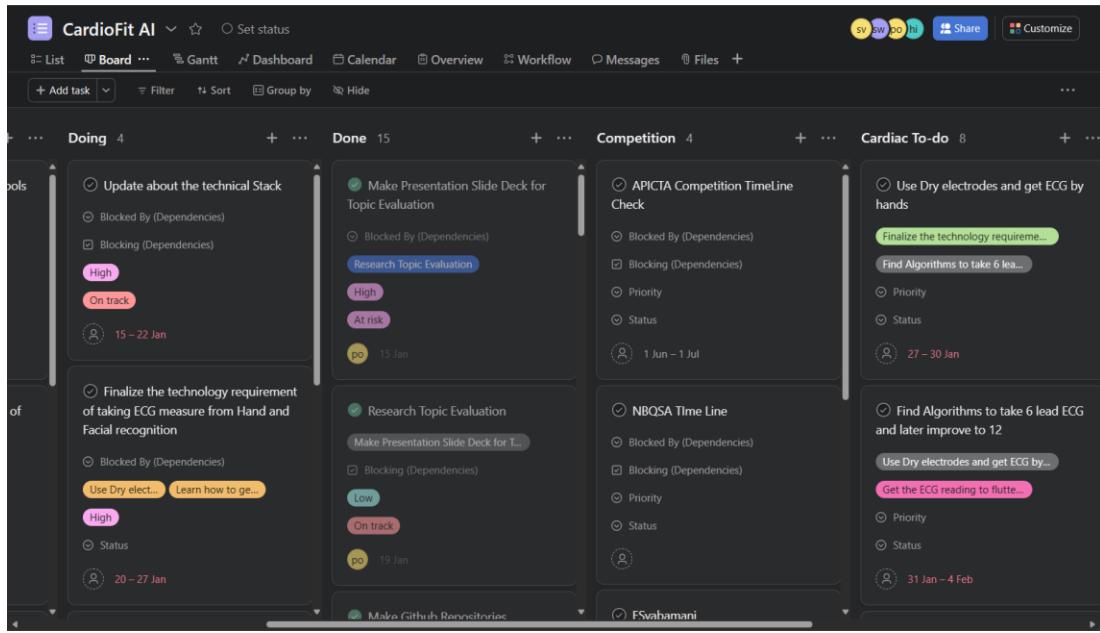


Figure 5: Asana project board 2

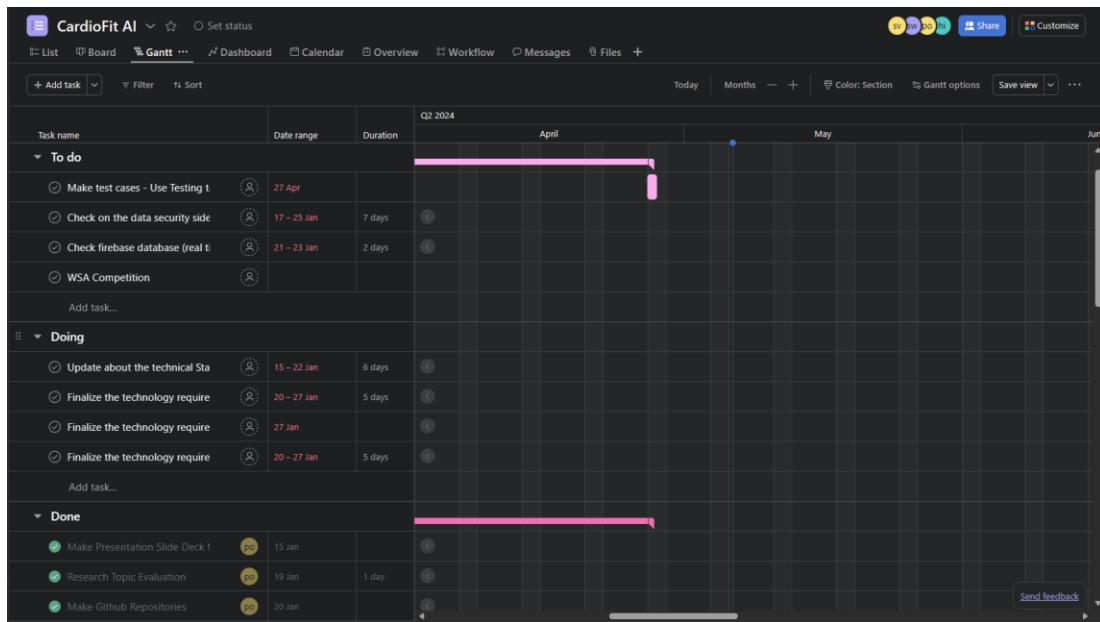


Figure 6: Asana Gantt chart 1

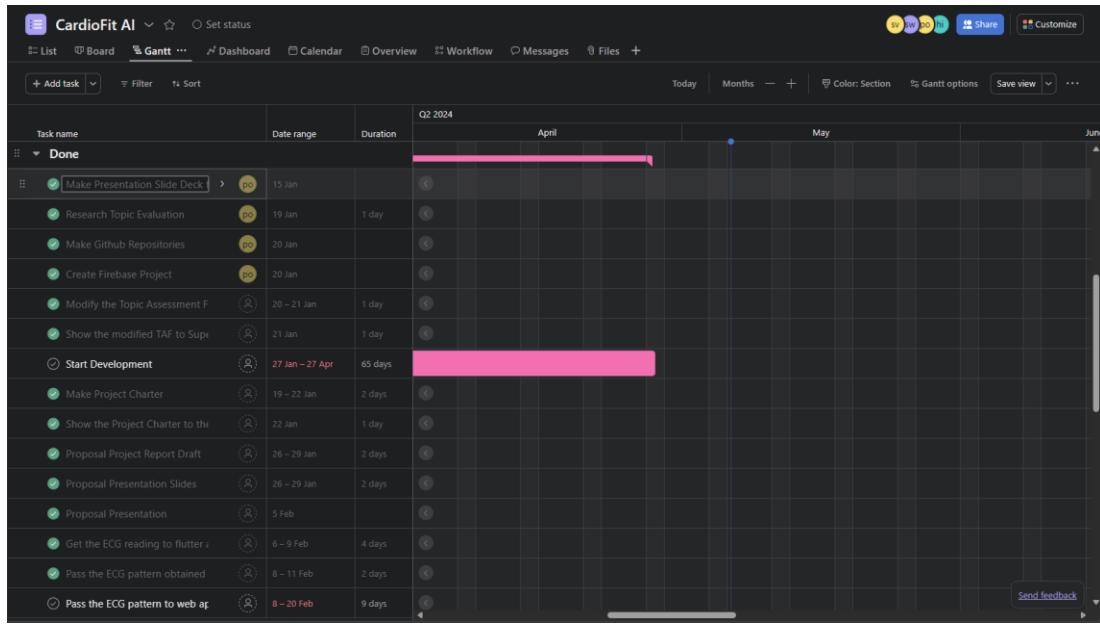


Figure 7: Asana Gantt chart 2

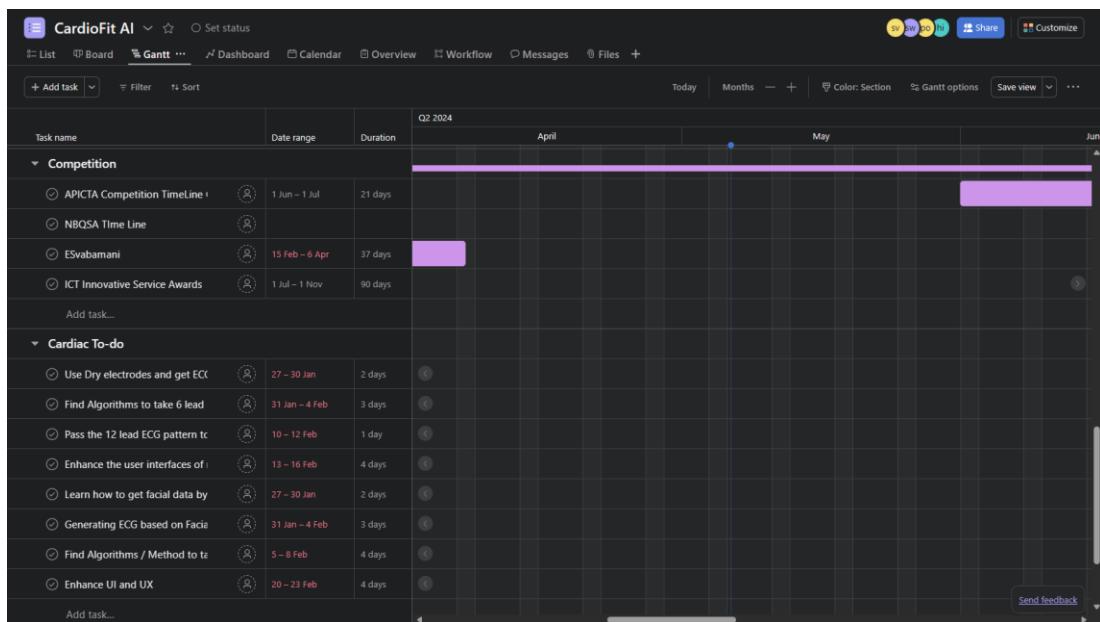


Figure 8: Asana Gantt chart 3

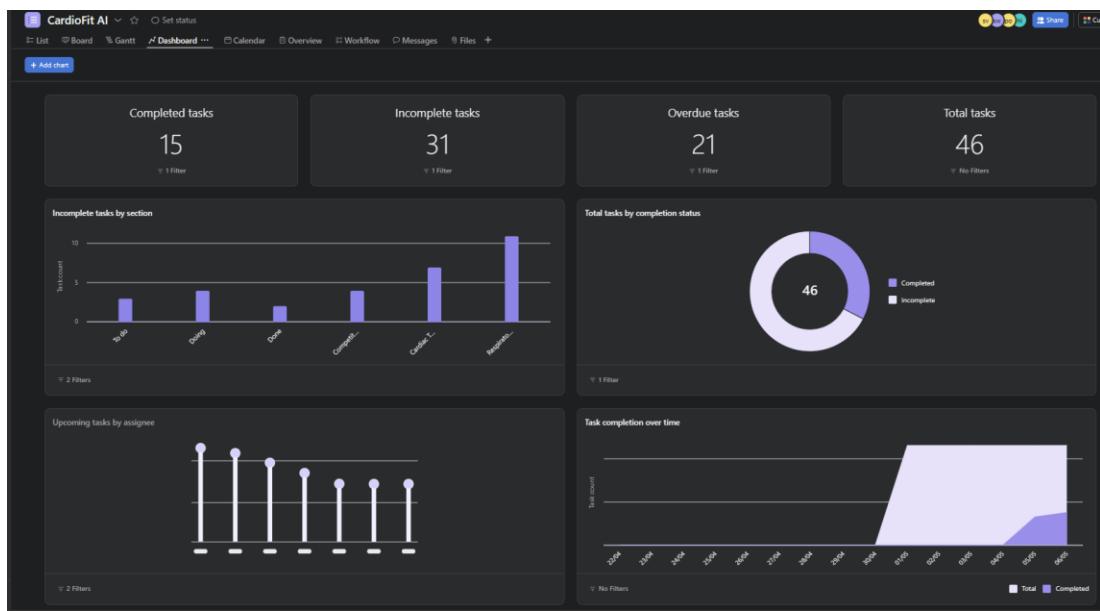


Figure 9: Asana dashboard

2. SCREENSHOTS OF GOOGLE DRIVE FOLDERS

Shared with me > 4 Year Research				
Type	People	Modified	Last modified	File size
Docs Submitted to SLIIIT	subasinghasanuthi@gmail.com	20 Jan 2024	subasinghasan...	–
Meeting Minutes	subasinghasanuthi@gmail.com	11 Jan 2024	subasinghasan...	–
Previous Year Projects	subasinghasanuthi@gmail.com	25 Jan 2024	subasinghasan...	–
Research Papers	subasinghasanuthi@gmail.com	23 Jan 2024	subasinghasan...	–
CardioResp AI Development Plan	subasinghasanuthi@gmail.com	28 Jan 2024	subasinghasan...	31 KB
Initial Group Member components	subasinghasanuthi@gmail.com	20 Jan 2024	subasinghasan...	20 KB
Sumithra Radiograph.m4a	subasinghasanuthi@gmail.com	3 Feb 2024	subasinghasan...	27.9 MB
TAF_R24-019.docx	subasinghasanuthi@gmail.com	17 Jan 2024	subasinghasan...	886 KB

Figure 10: Google drive folders

3. SCREENSHOTS OF THE MEETING MINUTES

Shared with me > 4 Year Research > Meeting Minutes ▾			
Type	People	Modified	
Name	Owner	Last modified	File size
Meeting 01	subasinghasanuthi@gma...	15 Jan 2024	subasinghasan... 3 KB
Meeting 02	subasinghasanuthi@gma...	15 Jan 2024	subasinghasan... 2 KB
Meeting 03	subasinghasanuthi@gma...	28 Jan 2024	subasinghasan... 2 KB
Meeting 04	subasinghasanuthi@gma...	28 Jan 2024	subasinghasan... 3 KB
Meeting 05	subasinghasanuthi@gma...	28 Jan 2024	subasinghasan... 2 KB
Meeting 06	subasinghasanuthi@gma...	6 Feb 2024	subasinghasan... 3 KB

Figure 11: All meeting minutes

Meeting 01	Date : 10.01.2024
Time	10.00 pm
Participant	Pramadhi Sir, Sanuthi Vihansa, Sathira Dinal, Hilarina Melani, Poorna Prabathiya
Discussion Focus	Brainstorming and breaking down of the components.

**ECG (Challenge)
(Poorna and Sathira)**

- 1. Identification of cardiac rhythm through facial analysis
- 2. Identification of cardiac rhythm through the analysis of both hands(palms)
 - i. Pressure identification
 - ii. Temperature detection

Target

- 1. Cardiac Abnormality pre identifications- 10
- 2. Generate a 3D model of heart for augmented reality / virtual reality

Expected non functional requirements

- 1. Warning generation
- 2. Emergency medical attention notification
 - a. Inform the loved ones
 - b. Update the doctor
 - c. Paramedics
 - d. Inform the hospital

**Respiratory diseases diagnosis
(Sanuthi and Hilarina)**

- 1. Scan body from a camera and generate an x ray feed of the lungs
- 2. Perform imagine processing to identify lung abnormalities
- 3. Generate an 3D model of the lungs using 2D images
- 4. Generate a 3D model based on the real time video feed

Target

- 1. Lung abnormality pre identification - 10

Assigned Tasks

- 1. Fill the topic assessment form
- 2. Come up with the technology stack

Figure 12: Meeting minutes 1

Meeting 02	Date : 15.01.2024
Time	10.30 pm
Participant	Dr.Dilshan De Silva, Pramadhi Sir, Sanuthi Vihansa, Sathira Dinal, Hilarina Melani, Poorna Prabathiya
Discussion Focus	Research Progress Update session

1. Poorna was instructed to research whether it is possible to get ECG using dry electrodes.
 2. Sathira was instructed to find more about a methodology to get ECG using face recognition.
 3. Sathira was asked to check on the research which states about a possibility to generate ECG using the iris of the eye.
 4. Sanuthi and Hilarina has to search about getting an x ray out of a digital camera
 5. Hilarina and Sanuthi to check about the lung defects that could be identified via an x-ray of a patient.
 6. Make the topic evaluation presentation slides by 17.01.2024
 7. The entire team was instructed to give an update about their researched domain by 17.01.2024
 8. Next meeting - 17.01.2024 at 10.00 pm

Figure 13: Meeting minutes 2

Meeting 03	Date : 18.01.2024
Time	10.30 pm
Participant	Dr.Dilshan De Silva, Mr. Pramadhi Atapattu, Sanuthi Vihansa, Sathira Dinal, Hilarina Melani, Poorna Prabathiya
Discussion Focus	Project Topic Evaluation Presentation Slide Review

1. Re-modification of slides was requested.
 2. Essential points on how we need pitch the product was taught
 3. Presentation points of each member were modified and additional points were suggested.

Figure 14: Meeting minutes 3

Meeting 04	Date : 20.01.2024
Time	10.30 am
Participant	Mr. Pramadhi Atapattu, Sanuthi Vihansa, Sathira Dinal, Hilarina Melani, Poorna Prabathiya
Discussion Focus	Research Methodology Doubt

1. All members were given time until 27.01.2024 to find more researched relevant for the domain
 2. Doubt on how X - Ray image could be generated from a consumer camera was discussed.

Figure 15: Meeting minutes 4

Meeting 05	Date : 28.01.2024
Time	11.30 am
Participant	Dr.Dilshan De Silva, Mr. Pramadhi Atapattu, Sanuthi Vihansa, Sathira Dinal, Hilarina Melani, Poorna Prabathiya
Discussion Focus	Progress update - Research update

1. hilarinamelani21@gmail.com [Sanuthi Subasingha](#) was advised to meet a radiologist to discuss further regarding the lung X ray part
 2. Poorna's and Sathira's obtaining ECG from palm and facial recognition was discussed.
 3. Sathira was asked to do a detailed finding of the research paper.
 4. Meeting to be scheduled for Sathira and Poorna to discuss the ECG generation.
 5. It was instructed to process the topic assessment form as it is and upload the document.

Figure 16: Meeting minutes 5

4. SCREENSHOTS OF THE TEAMS MEETING HISTORY

This screenshot shows a list of meetings in a Teams channel. The first meeting, "BrainStorming Session 01" on Saturday, 25 November 2023 at 20:00, was scheduled and ended at 20:35 with a duration of 34m 51s. The second meeting, "Research Topic Selection - V4" on Monday, 27 November 2023 at 19:30, was also scheduled and ended at 21:09 with a duration of 1h 39m 21s. Both meetings have a "Join" button.

Figure 17: Teams meeting history

This screenshot shows a list of meetings in a Teams channel. The first meeting, "Brainstorm Session 02" on Thursday, 30 November 2023 at 22:30, was scheduled and ended at 00:43 with a duration of 2h 11m 21s. The second meeting, on 03/12/2023 at 17:44, involved discussing "oculomotor, trochlear, and abducens nerves test for kids technique". The third meeting, "Meeting in 'Research' ended" on 22/12/2023 at 20:05, was ended by Wijeratne D.M.S.D. Both meetings have a "Join" button.

Figure 18: Teams meeting history

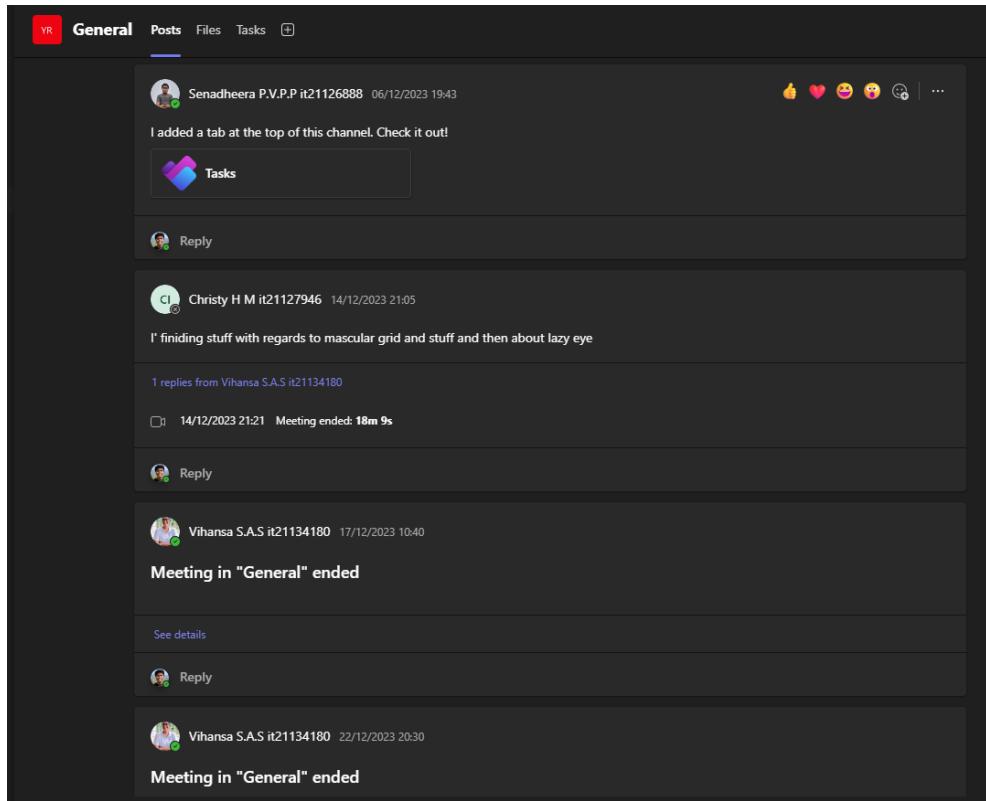


Figure 19: Teams meeting history

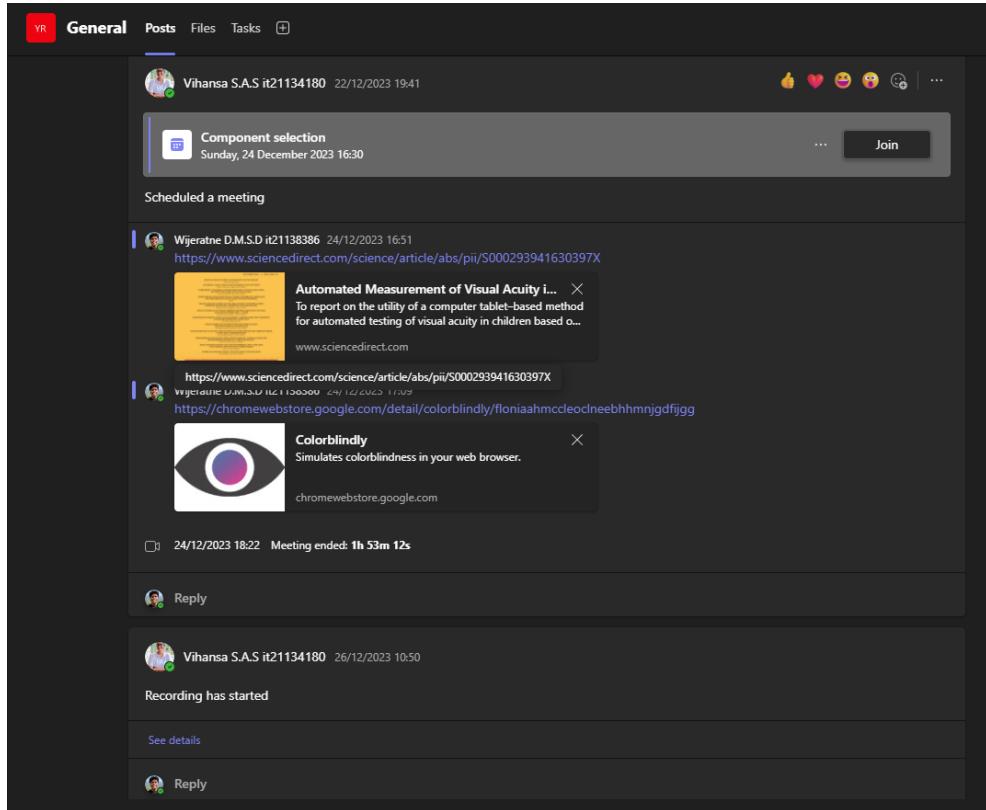


Figure 20: Teams meeting history

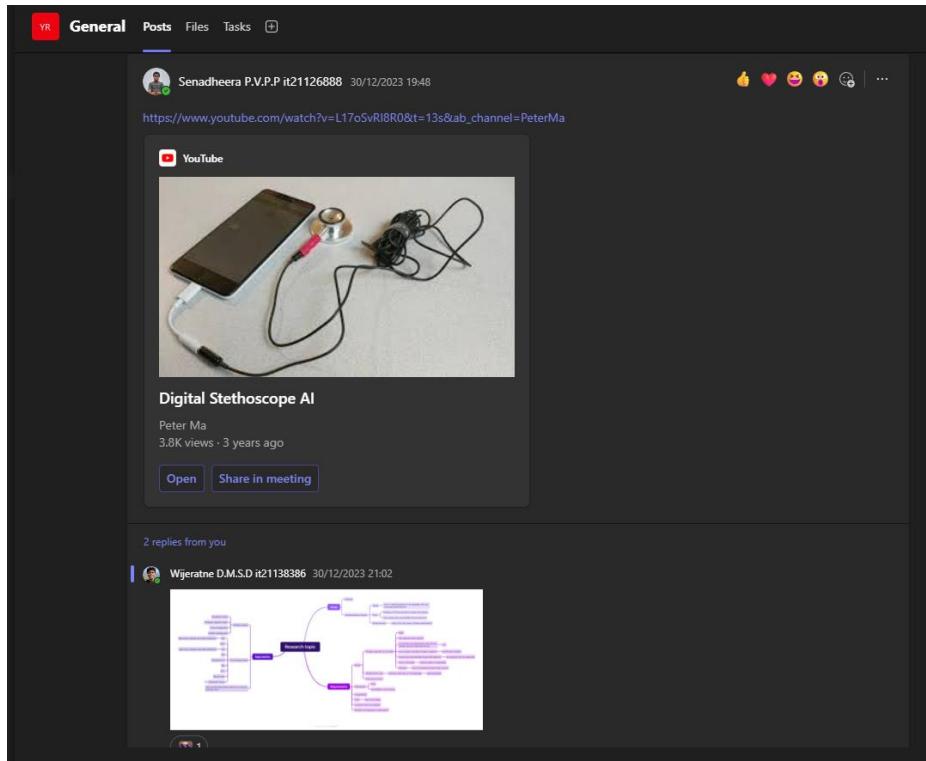


Figure 21: Teams meeting history

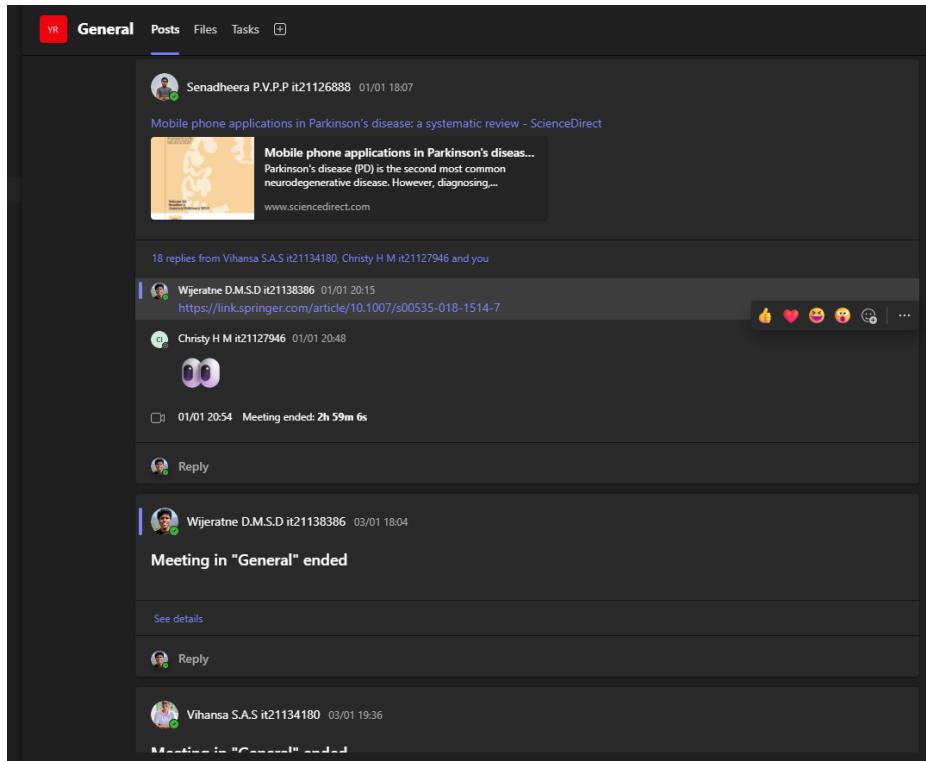


Figure 22: Teams meeting history

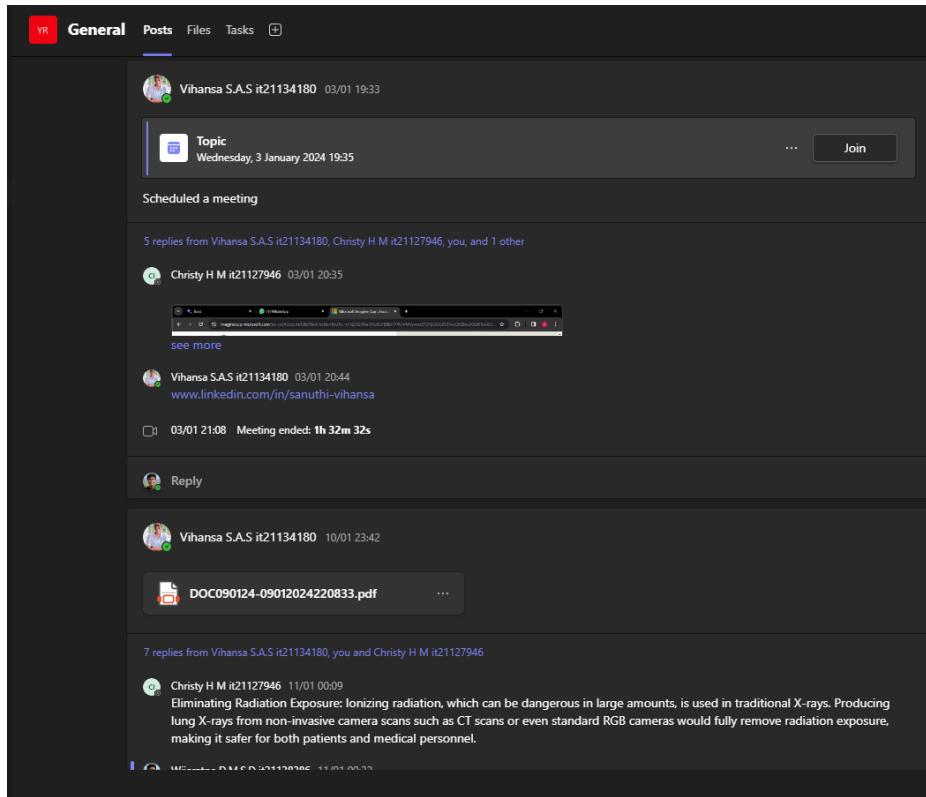


Figure 23: Teams meeting history

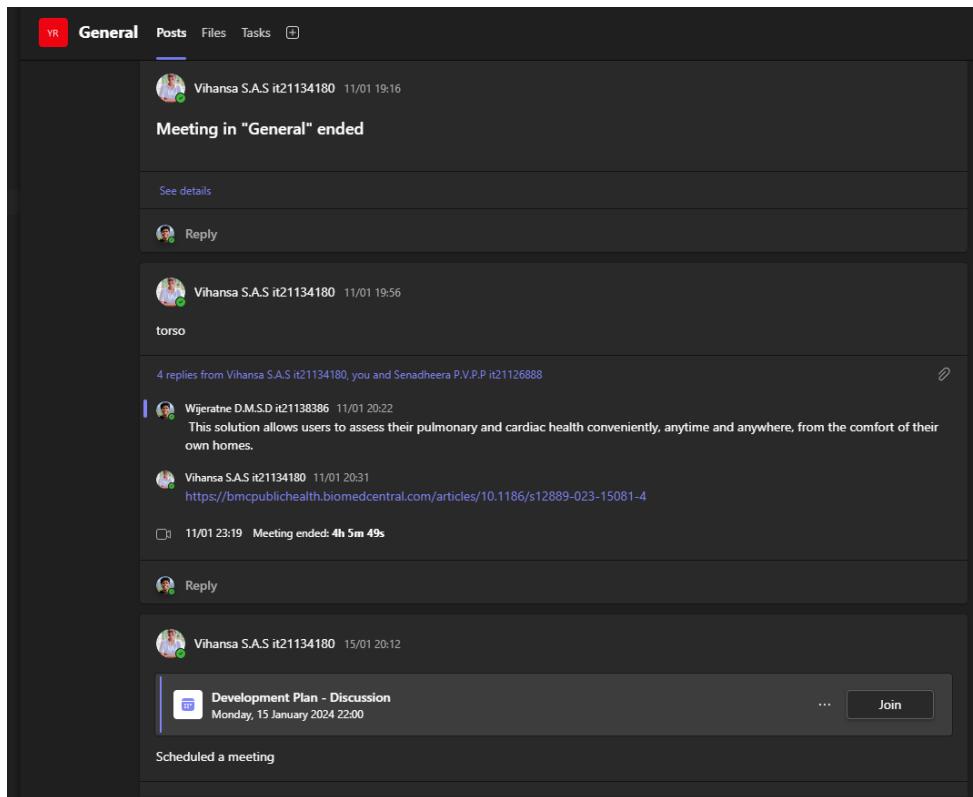


Figure 24: Teams meeting history

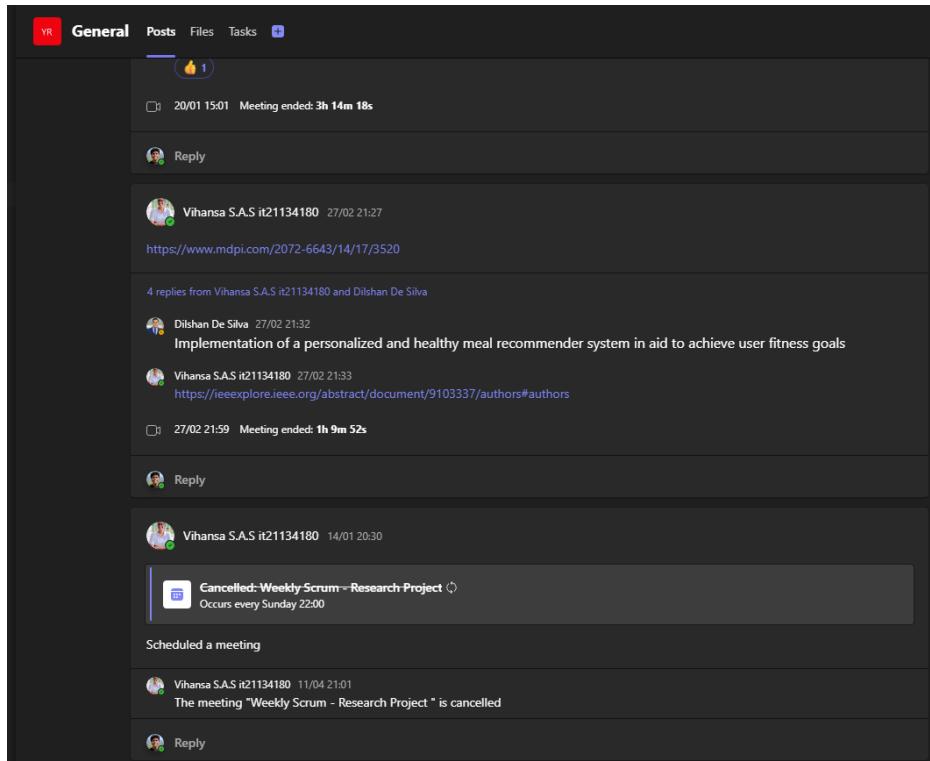


Figure 25: Teams meeting history

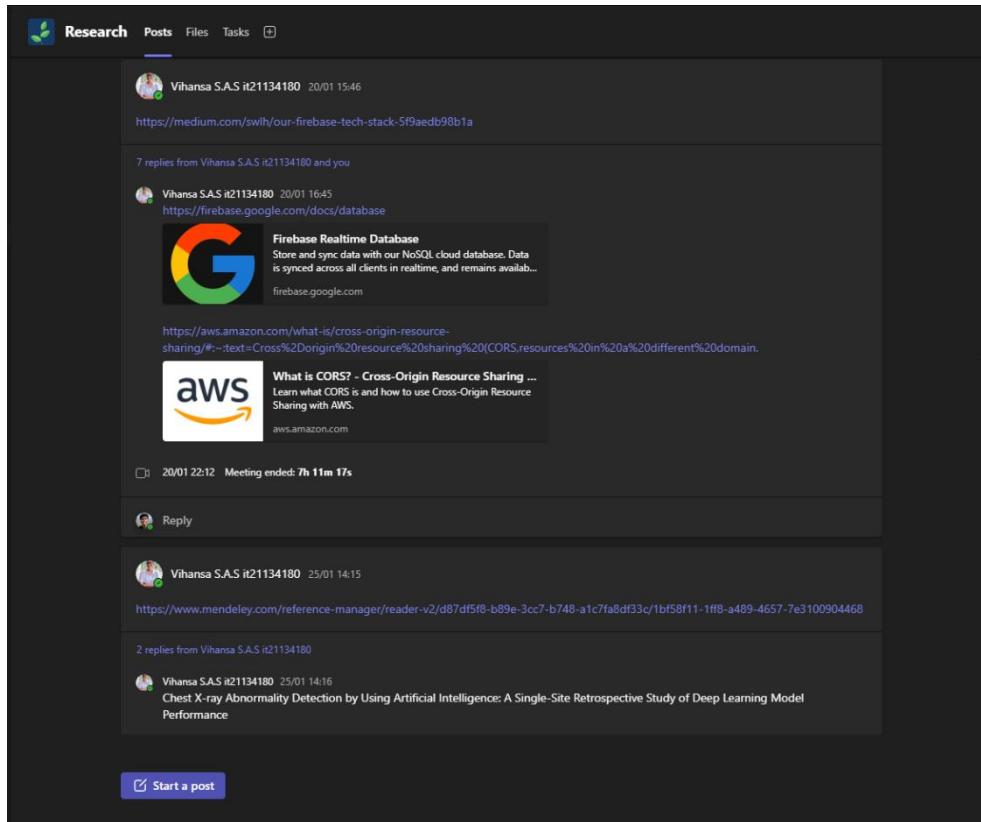


Figure 26: Teams meeting history

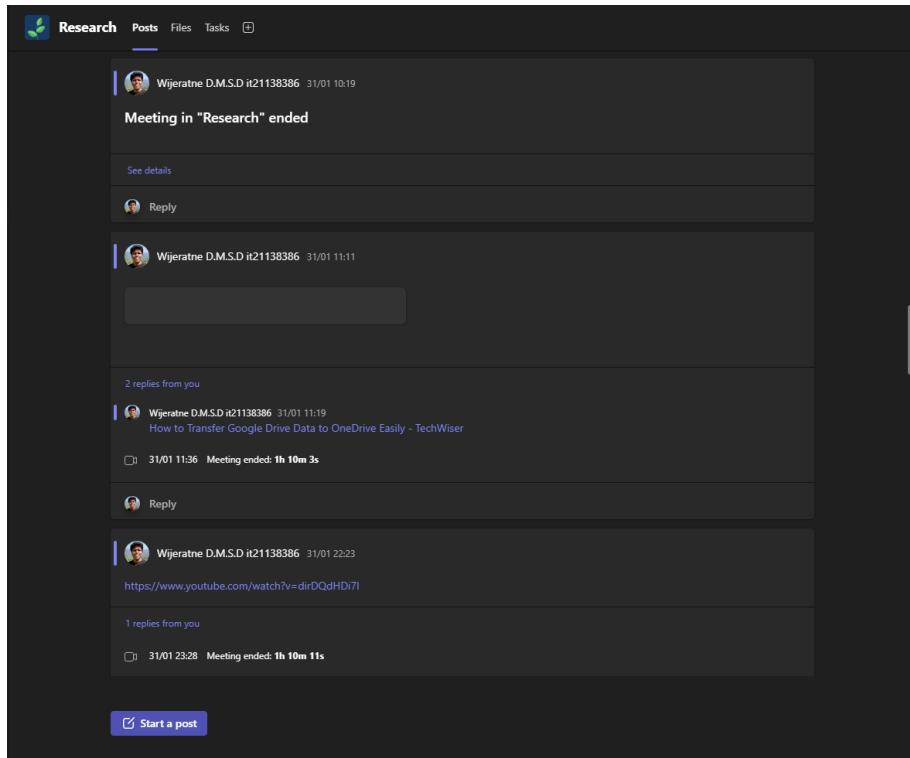


Figure 27: Teams meeting history

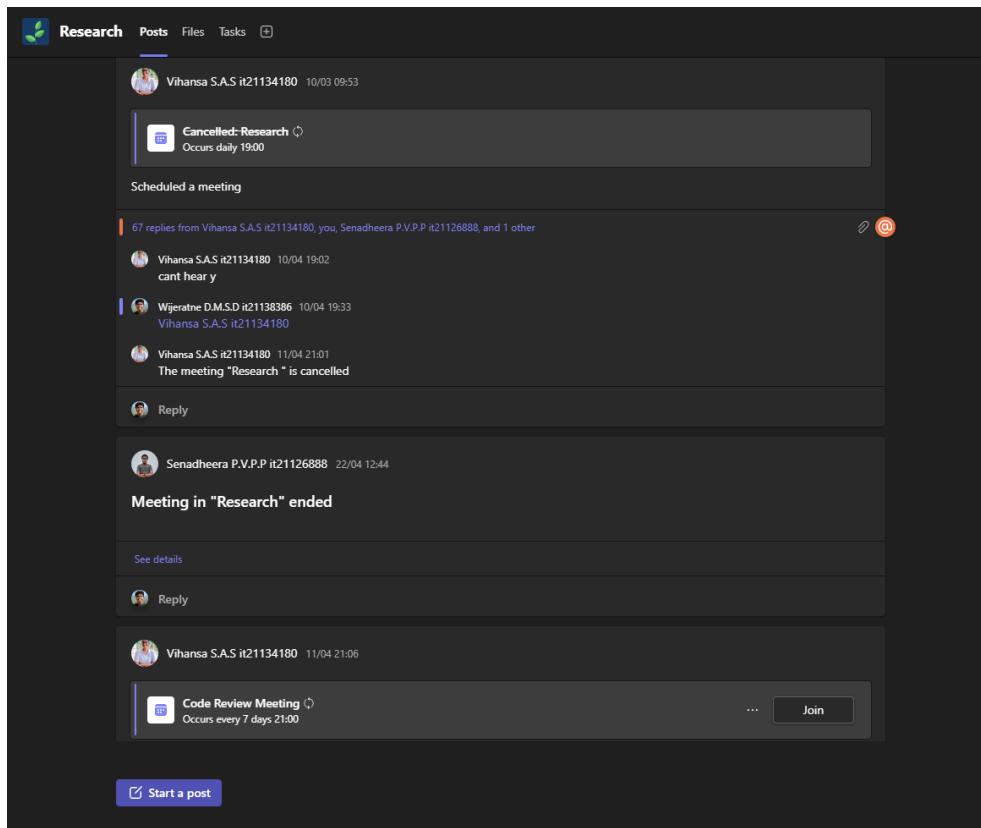


Figure 28: Teams meeting history

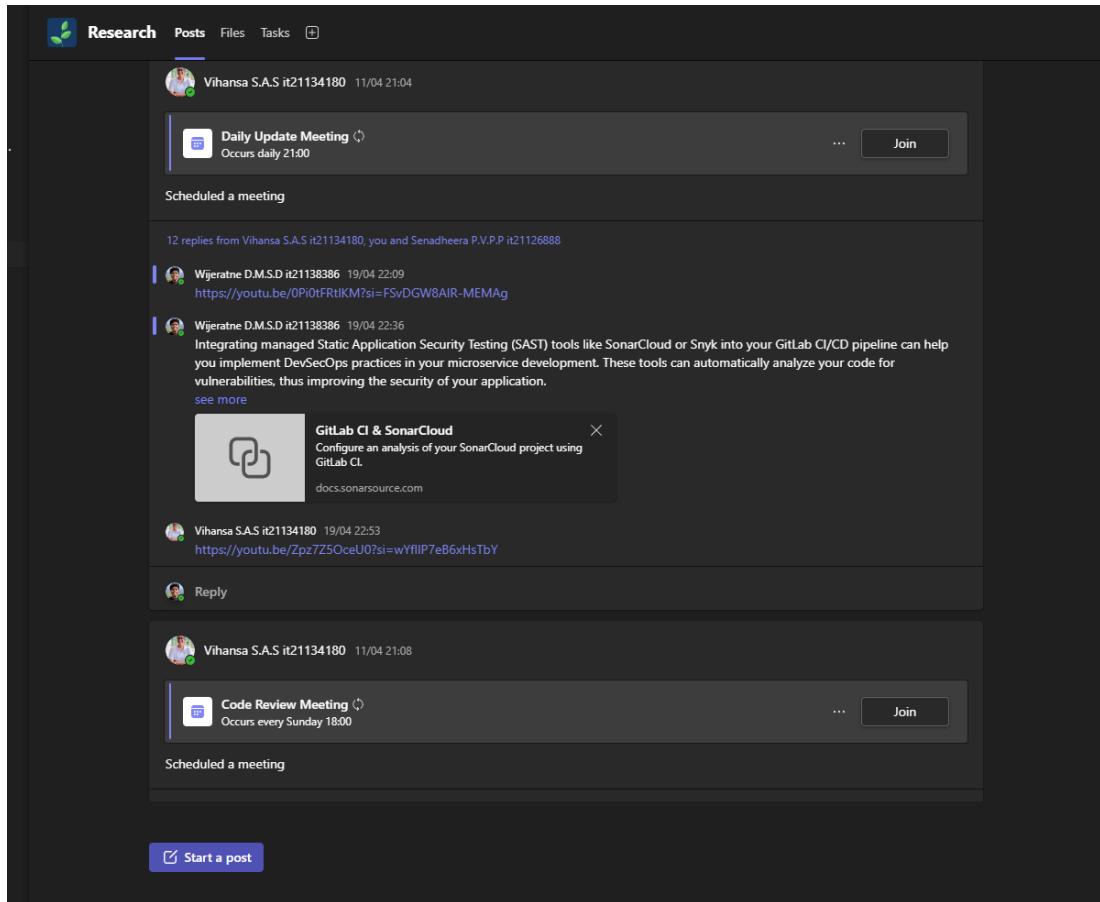


Figure 29: Teams meeting history

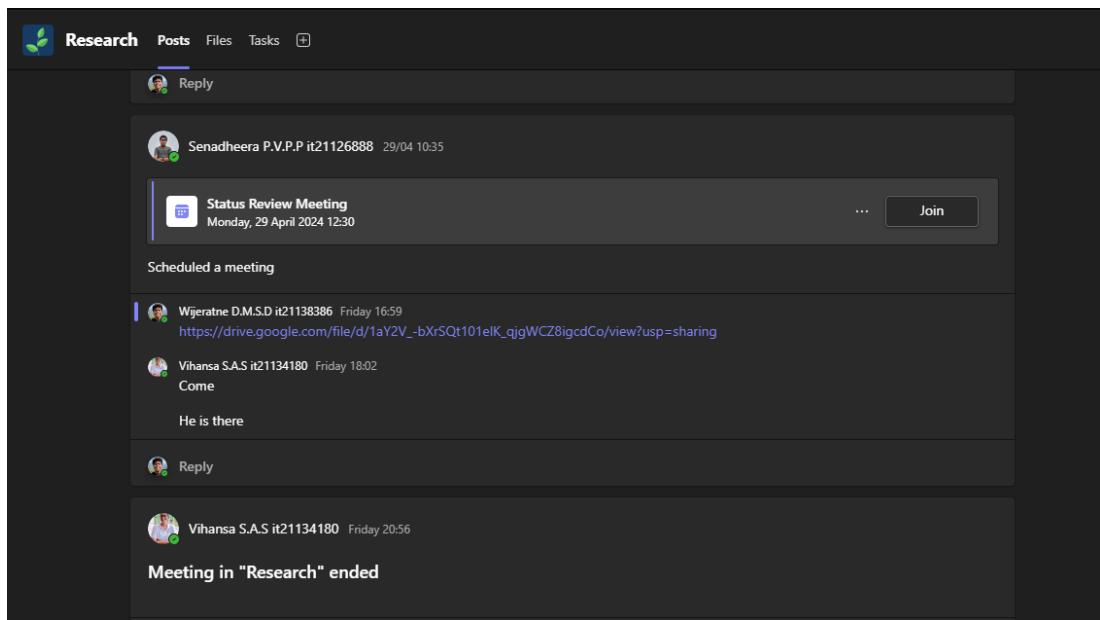


Figure 30: Teams meeting history

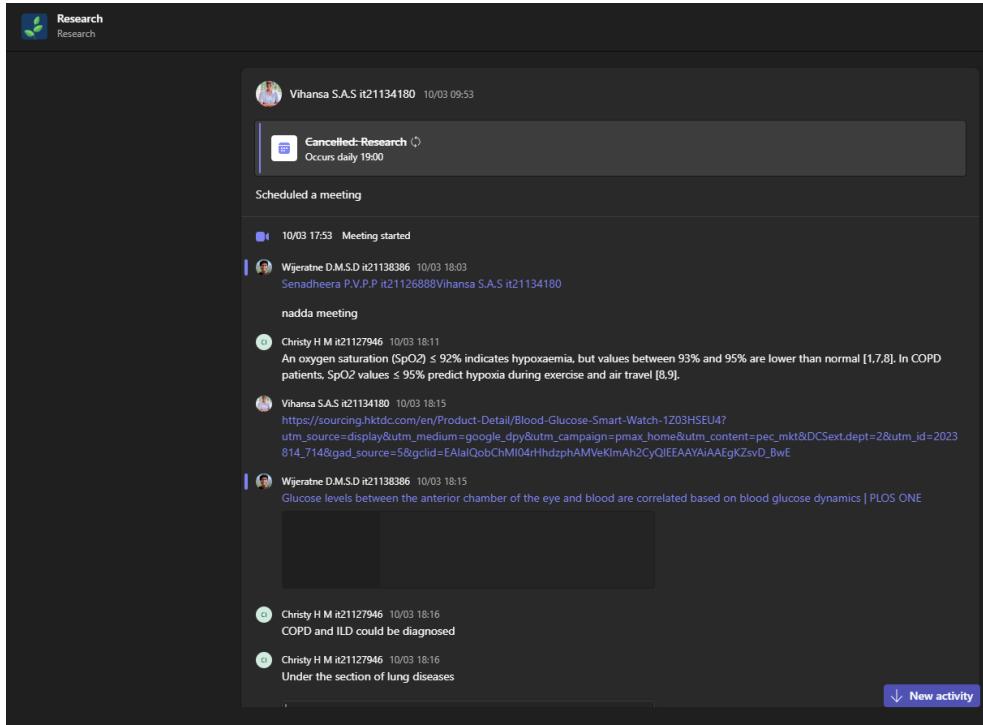


Figure 31: Teams meeting history

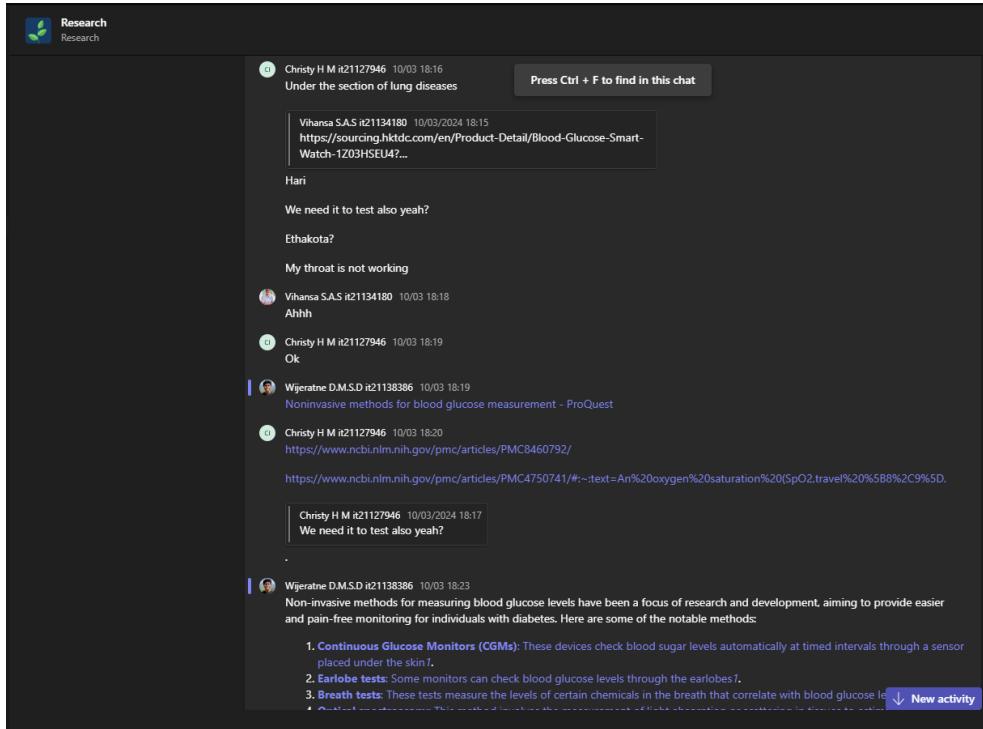


Figure 32: Teams meeting history

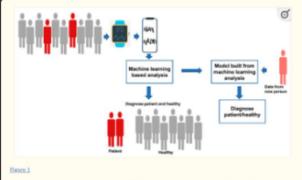
Wijeratne D.M.S.D it21138386 10/03 18:23

Non-invasive methods for measuring blood glucose levels have been a focus of research and development, aiming to provide easier and pain-free monitoring for individuals with diabetes. Here are some of the notable methods:

- Continuous Glucose Monitors (CGMs):** These devices check blood sugar levels automatically at timed intervals through a sensor placed under the skin.
- Earlobe tests:** Some monitors can check blood glucose levels through the earlobes.
- Breath tests:** These tests measure the levels of certain chemicals in the breath that correlate with blood glucose levels.
- Optical spectroscopy:** This method involves the measurement of light absorption or scattering in tissues to estimate glucose concentration.
- Photoacoustic spectroscopy:** This technique uses laser-induced ultrasound to measure glucose levels non-invasively.
- Electromagnetic sensing:** This approach detects changes in electromagnetic properties due to varying glucose concentrations.
- Nanomaterial-based sensing:** This method employs nanomaterials to react with glucose and produce measurable signals.

These technologies are continually being refined to improve accuracy and ease of use. It's important to consult with healthcare professionals to understand which method might be best suited for individual needs and circumstances.

Christy H M it21127946 10/03 19:08



<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9498278/>

Figure 33: Teams meeting history

They have made use of something called Smartfall
to get the dat from the smartwatch
Afterwhich diagnosing is done

Wijeratne D.M.S.D it21138386 10/03 20:47
What is the convention for word separator in Java package names? - Stack Overflow

Wijeratne D.M.S.D it21138386 10/03 20:53
Developing packages & plugins | Flutter



Senadheera P.V.P.P it21126888 10/03 21:48

```
corr = stat.pearsonr(y_test_reshaped, pred_reshaped)corr
```

```
import scipy.stats as stat
```

10/03 23:24 Meeting ended: 5h 30m 49s

11 March

11/03 19:01 Meeting started

Senadheera P.V.P.P it21126888 11/03 20:17

Figure 34: Teams meeting history

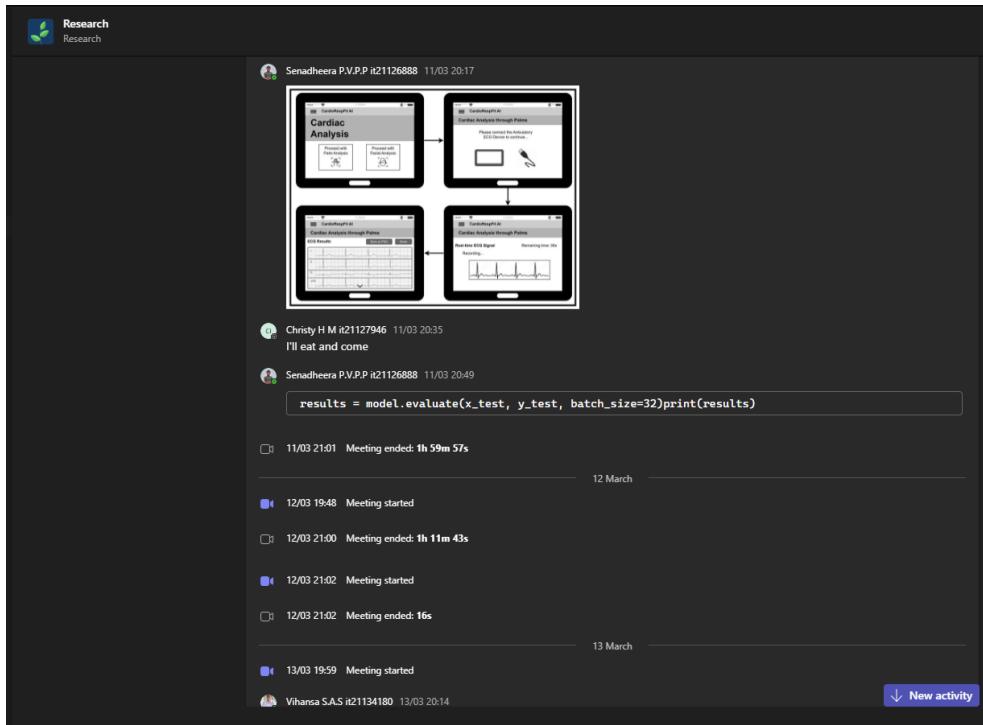


Figure 35: Teams meeting history

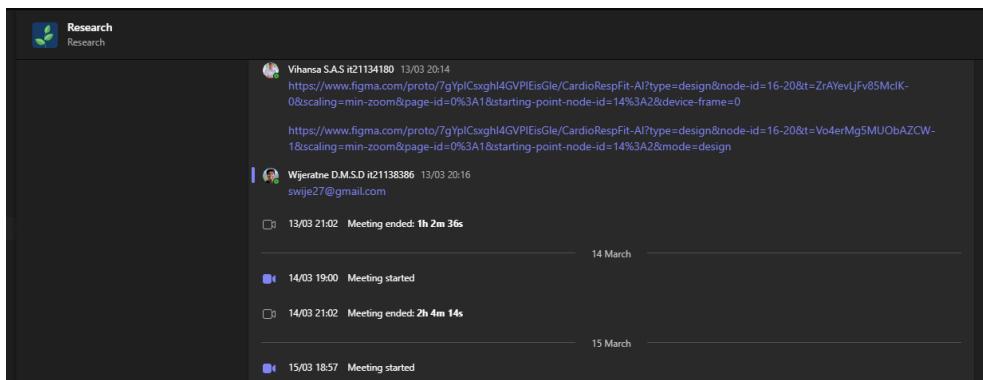


Figure 36: Teams meeting history

What shouldn't you do?

- Change the contents in the proposal document
 - Change project title
 - Change project components
 - Change project scope
 - Change the research problem/solution
- Change the group you are in
- When assessments are scheduled, request for an extension or alternatives arrangements

	Past	Present
Application Title	CardioResp AI	CardioFit AI
Project Title	REVOLUTIONIZING REMOTE HEALTH MONITORING: AUTONOMOUS DETECTION OF PULMONARY AND CARDIAC ABNORMALITIES WITH CUSTOMIZED DIETARY PLANNING	REVOLUTIONIZING REMOTE HEALTH MONITORING: AUTONOMOUS DETECTION OF CARDIAC ABNORMALITIES WITH CUSTOMIZED DIETARY PLANNING

Our team has carefully considered the alignment of our group title with the components and objectives of our project, particularly following recent modifications.

Initially we chose the name "CardioResp AI" to reflect our focus on predicting both cardiac and lung abnormalities. However,

Figure 37: Teams meeting history

Initially, we chose the name "CardioResp AI" to reflect our focus on predicting both cardiac and lung abnormalities. However, as our project evolved and underwent adjustments, we have streamlined our focus to concentrate solely on predicting cardiac abnormalities alongside the implementation of a dietary plan.

We believe that "CardioFit AI" better encapsulates the essence of our current project goals and components. It accurately portrays our dedication to utilizing artificial intelligence for enhancing cardiovascular health and fitness through predictive analytics and dietary interventions.

We understand the importance of consistency and clarity in branding, especially in professional contexts such as presentations and proposals. Therefore, we kindly request your assistance in effecting this name change, if feasible.

I am writing to formally request permission to change our project title from 'Revolutionizing Remote Health Monitoring: Autonomous Detection of Pulmonary and Cardiac Abnormalities with Customized Dietary Planning' to 'Revolutionizing Remote Health Monitoring: Autonomous Detection of Cardiac Abnormalities with Customized Dietary Planning'.

After receiving feedback from our Proposal Presentation Evaluation panel, our team has carefully considered the alignment of our group title with the components and objectives of our project. We understand the importance of consistency and clarity in branding, especially in professional contexts such as presentations and proposals. Therefore, we kindly request your assistance in effecting this name change, if feasible.

Thank you for your attention to this matter.

I'll eat and come

15/03 21:03 Meeting ended: 2h 5m 37s

Figure 38: Teams meeting history

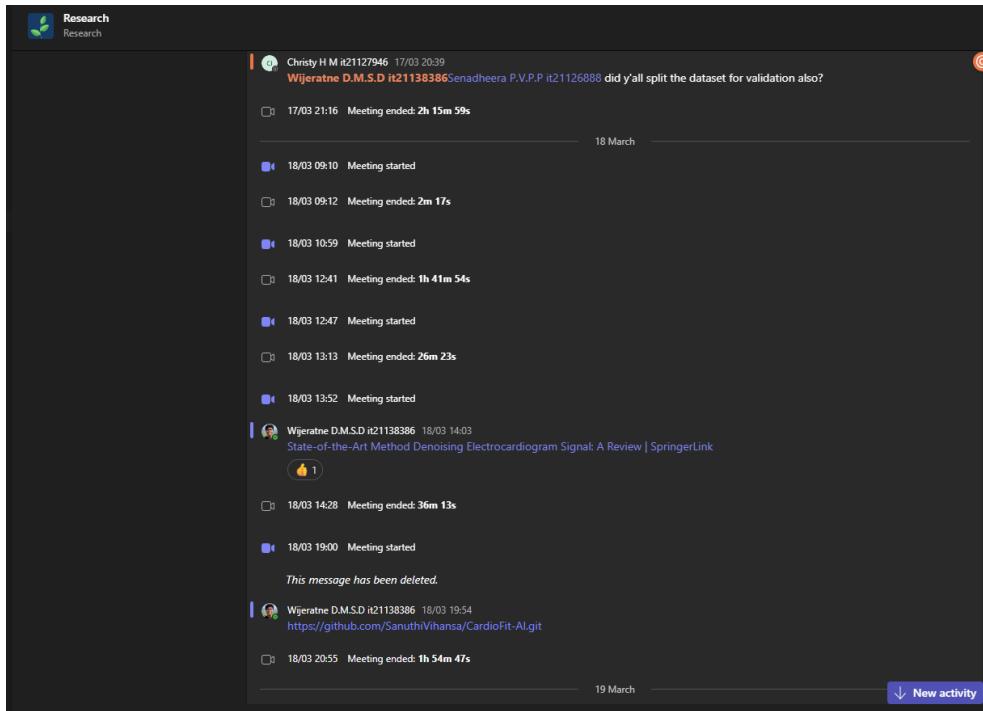


Figure 39: Teams meeting history

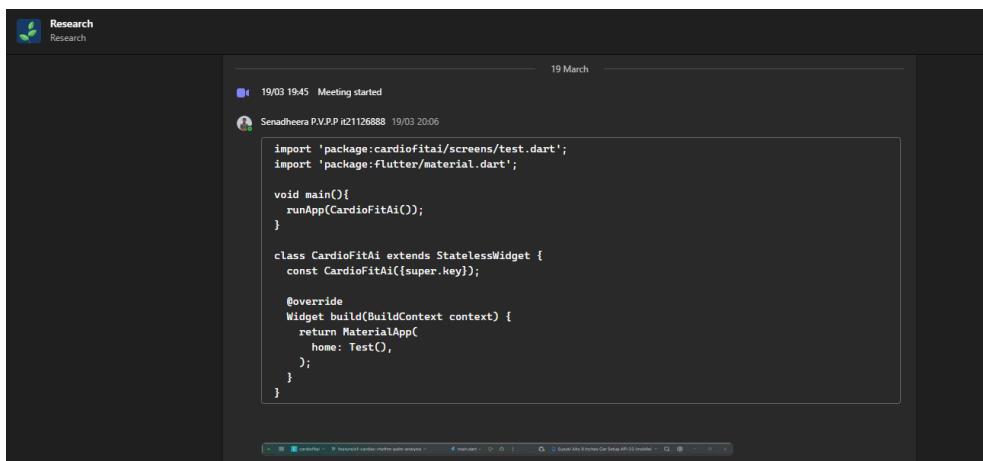


Figure 40: Teams meeting history

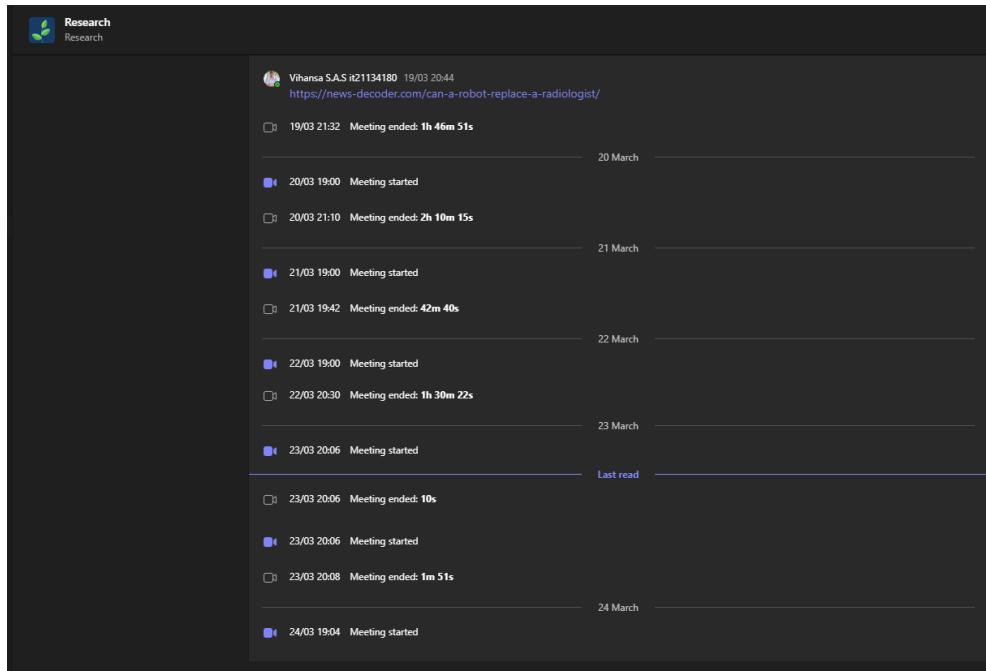


Figure 41: Teams meeting history

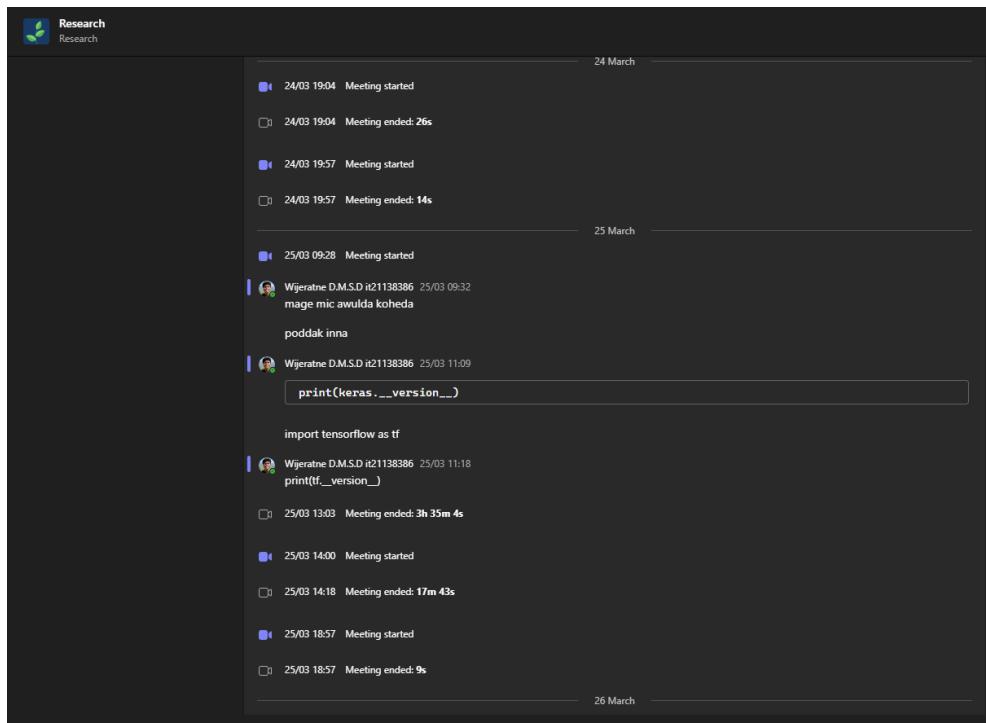


Figure 42: Teams meeting history

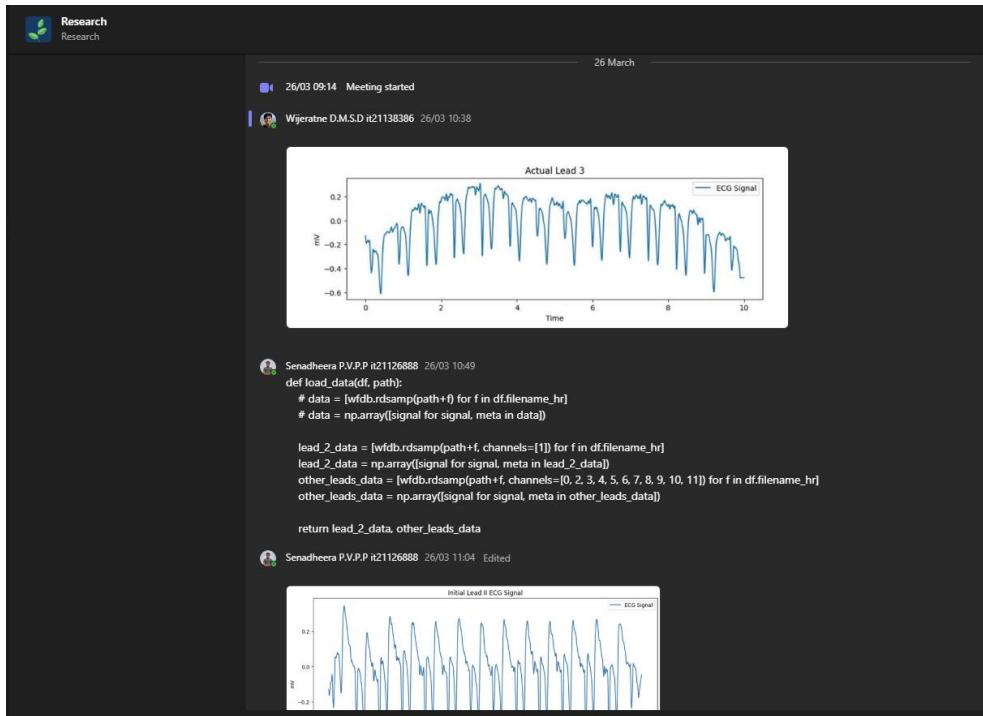


Figure 43: Teams meeting history

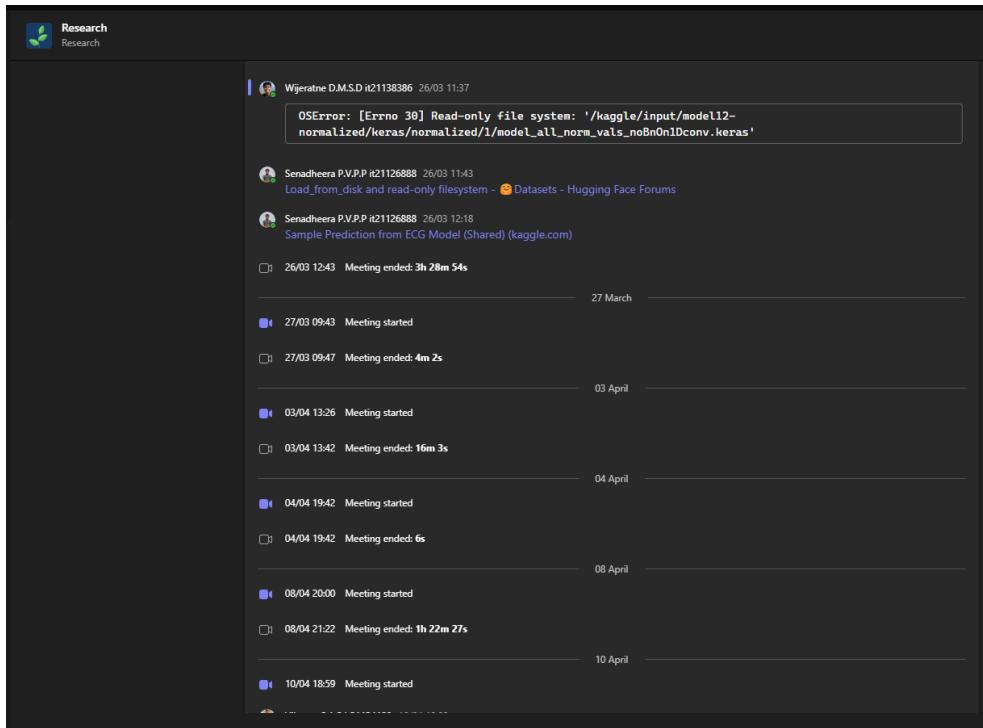


Figure 44: Teams meeting history

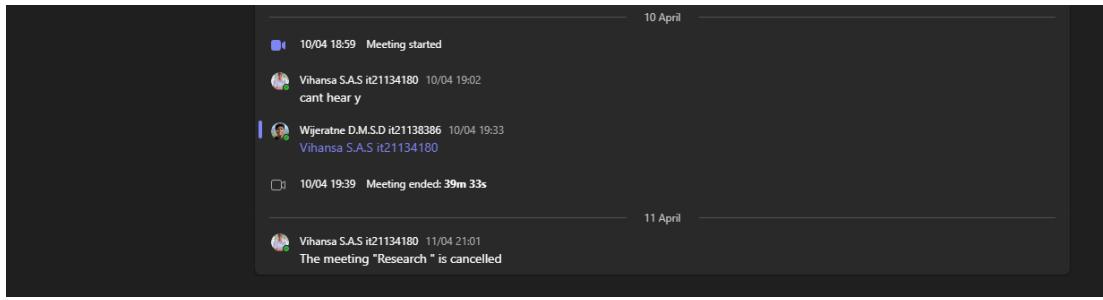


Figure 45: Teams meeting history

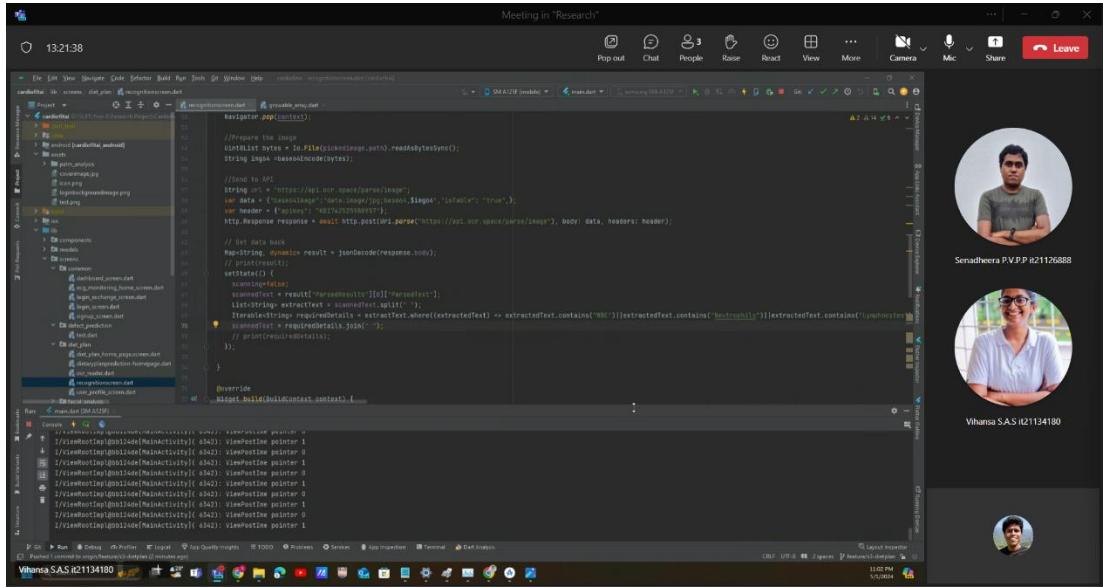
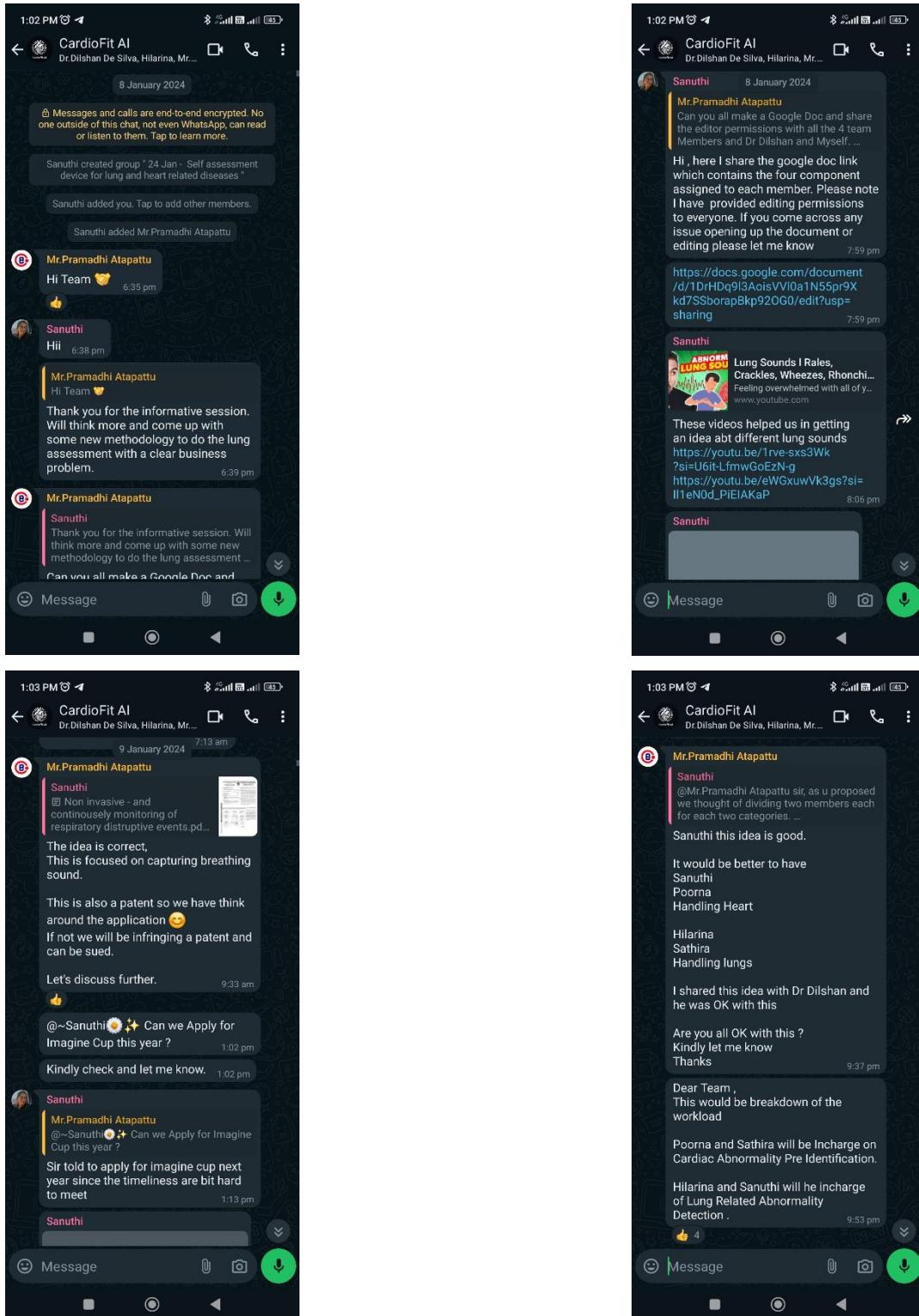
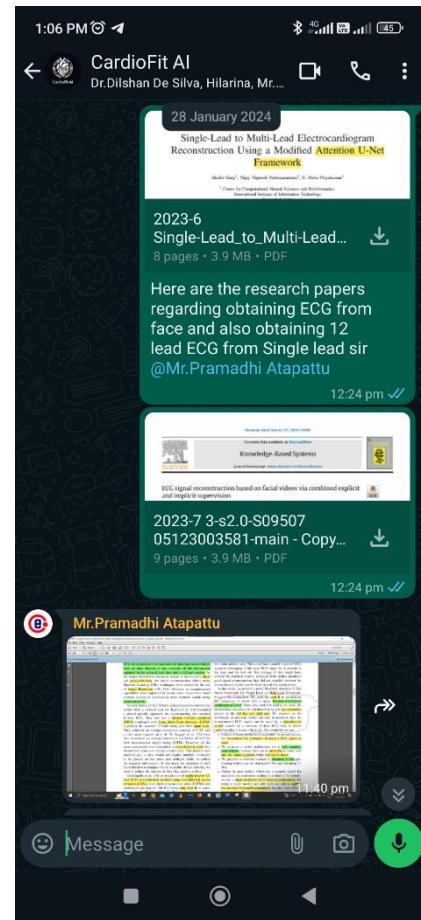
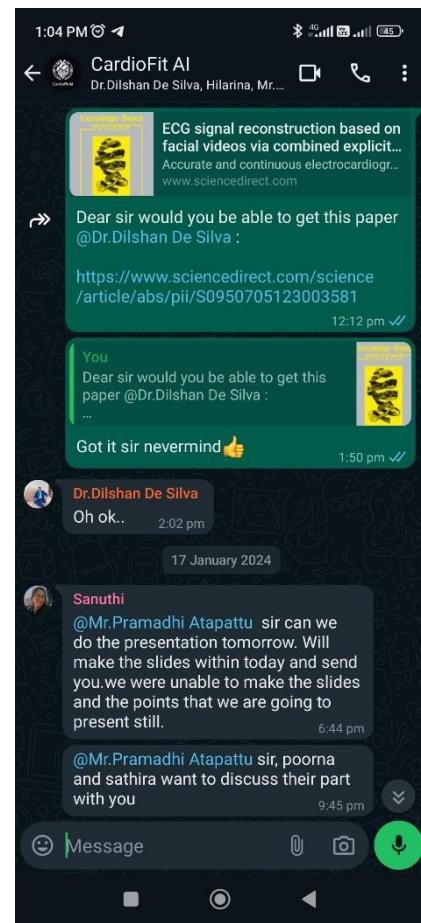
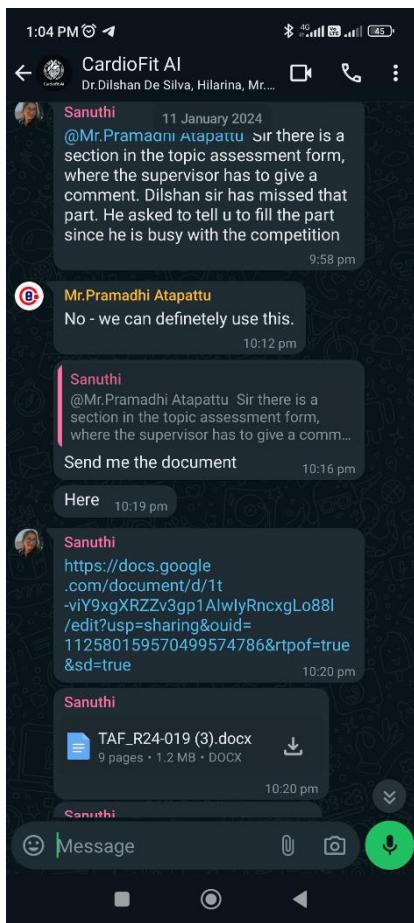
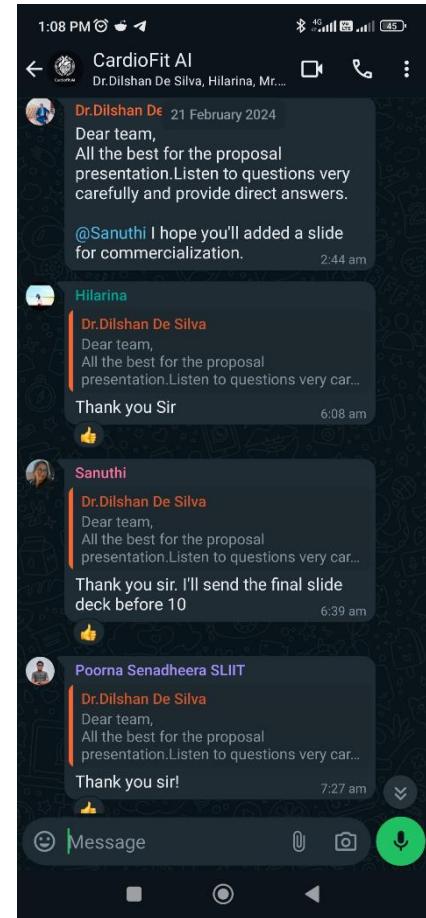
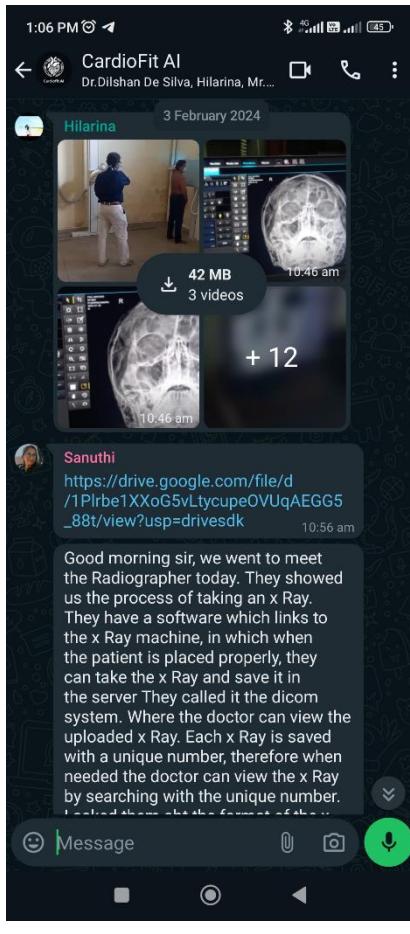


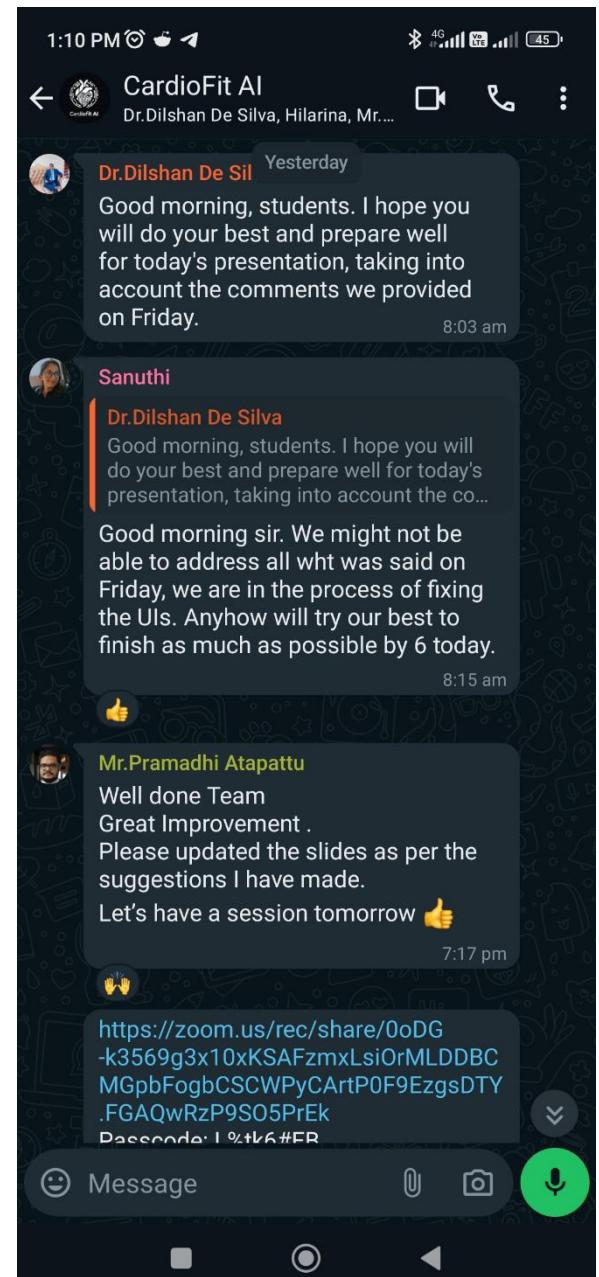
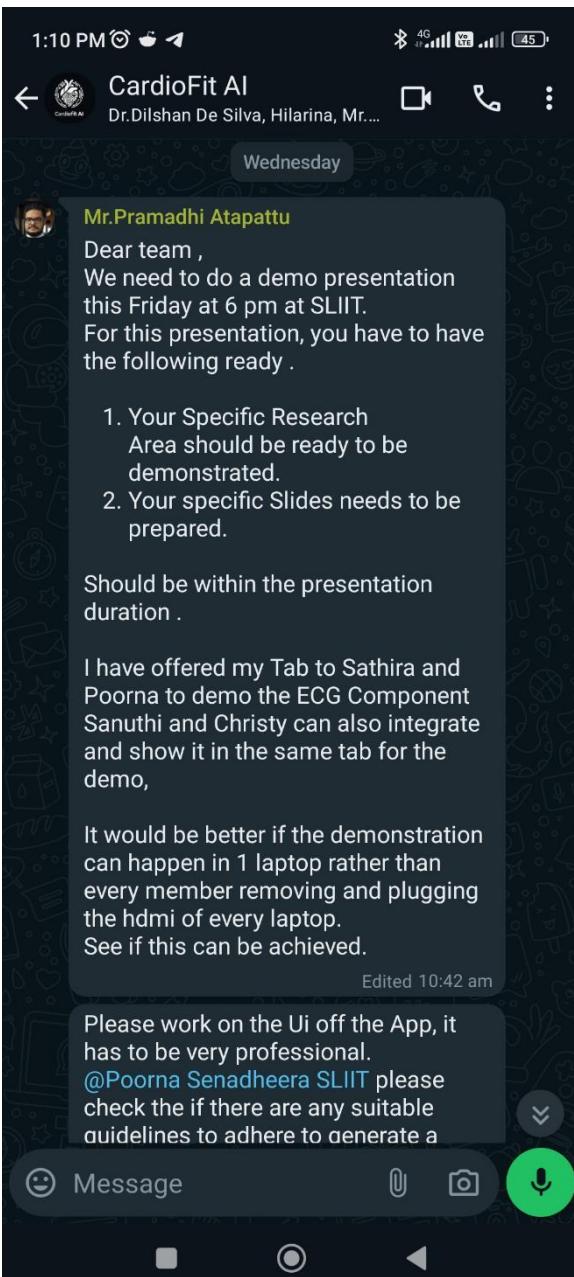
Figure 46: Teams meeting history

5. SCREENSHOTS OF THE WHATSAPP GROUP









6. FIGMA PROTOTYPE DESIGNING

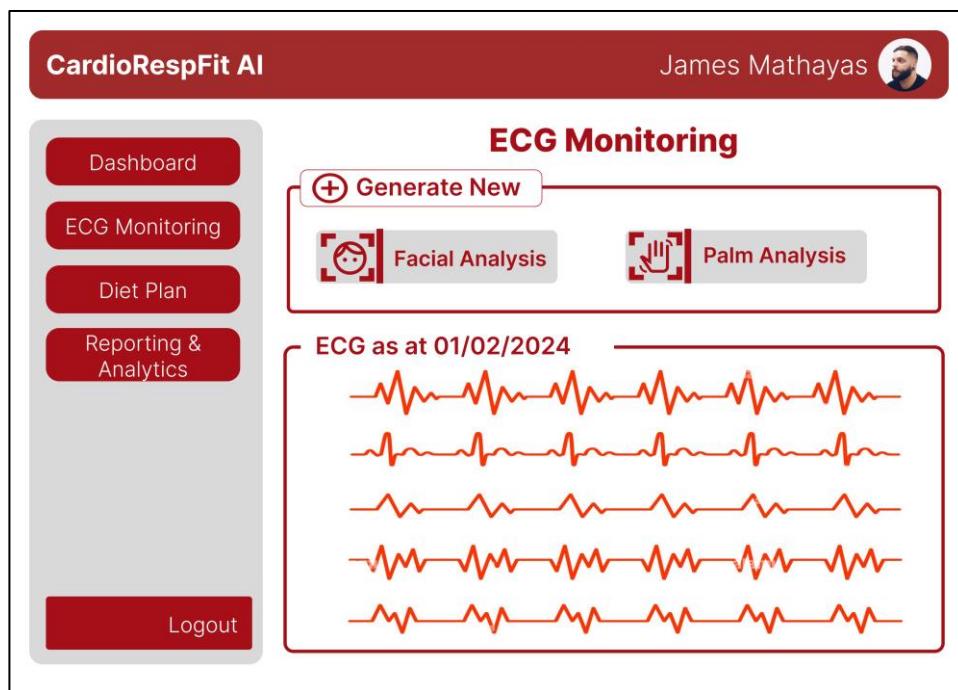


Figure 47: Facial Analysis UI 1

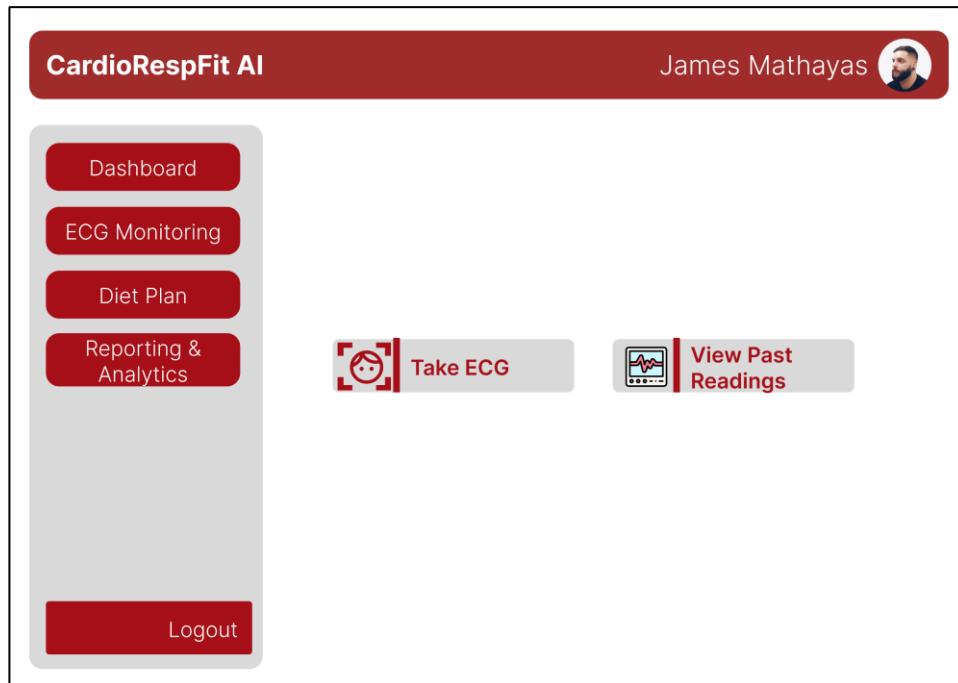


Figure 48: Facial Analysis UI 2

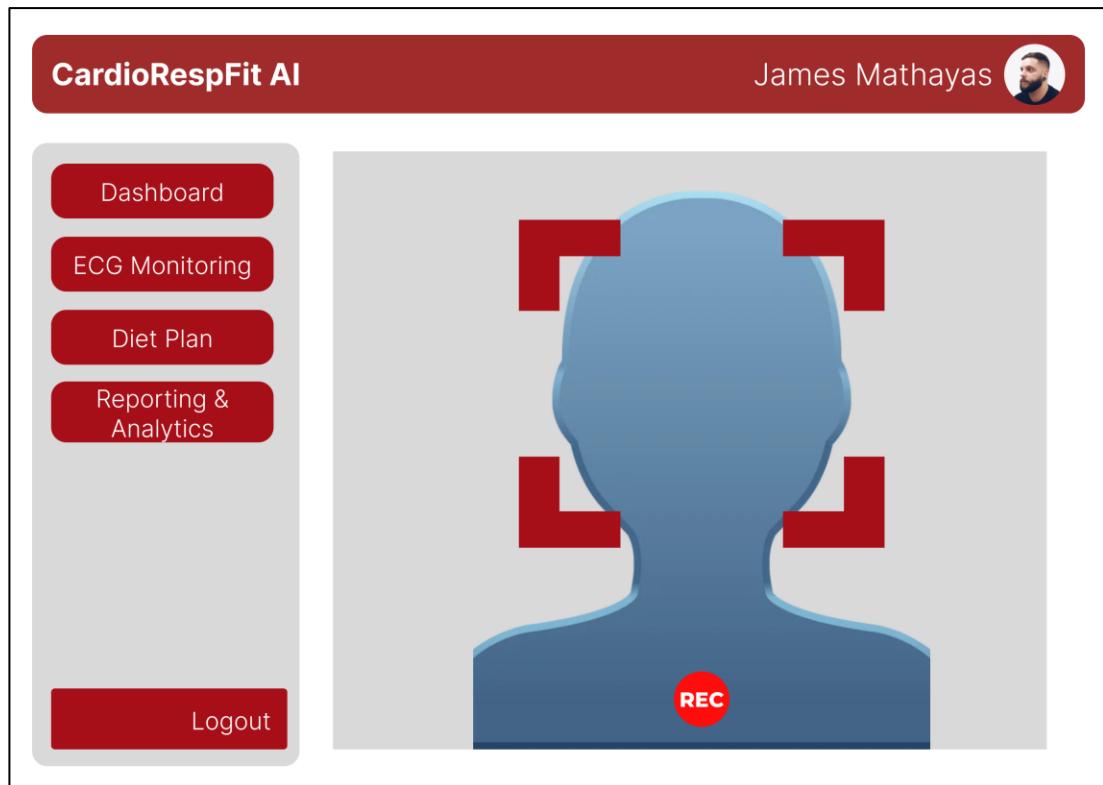


Figure 49: Facial Analysis UI 3

7. EVIDENCE FOR DEVELOPMENT

Test Attention U-net framework-v2.ipynb

```
[ ] Y = pd.read_csv(path+training_rec_file, index_col='ecg_id')
countExecution()
```

{x}

Y

patient_id	age	sex	height	weight	nurse	site	device	recording_date	report	... validated_by_human	baseline_drift	static_noise	burst	
ecg_id														
2510	302	76	0	170.0	80.0	3.0	1.0	AT-6 C 5.5	22/02/1989 10:28	sinus rhythm, left atrial enlargement, left ve...	...	True	NaN	NaN
15966	363	78	1	163.0	57.0	9.0	1.0	AT-6 6	19/04/1996 09:28	sinus rhythm, evolving inferolateral infarctio...	...	True	,v1	NaN
6690	412	72	1	165.0	83.0	NaN	10.0	AT-6 C 5.0	04/08/1991 08:22	sinus rhythm, t waves are inverted in iii, avf...	...	True	NaN	NaN
6701	412	72	1	165.0	83.0	NaN	10.0	AT-6 C 5.0	05/08/1991 08:17	sinus rhythm, compared with tracing of 3:8:9:2...	...	True	NaN	NaN
8769	415	76	1	NaN	NaN	NaN	12.0	AT-6 C 5.8	13/08/1992 09:01	atrial fibrillation with fast ventricular resp...	...	True	NaN	NaN
...	
20969	21709	64	1	NaN	NaN	0.0	0.0	CS100 3	04/01/2000 08:56	sinus rhythmus p-sinistrocardiale	...	False	NaN	,lAVF,

Figure 50: PTB XL dataset

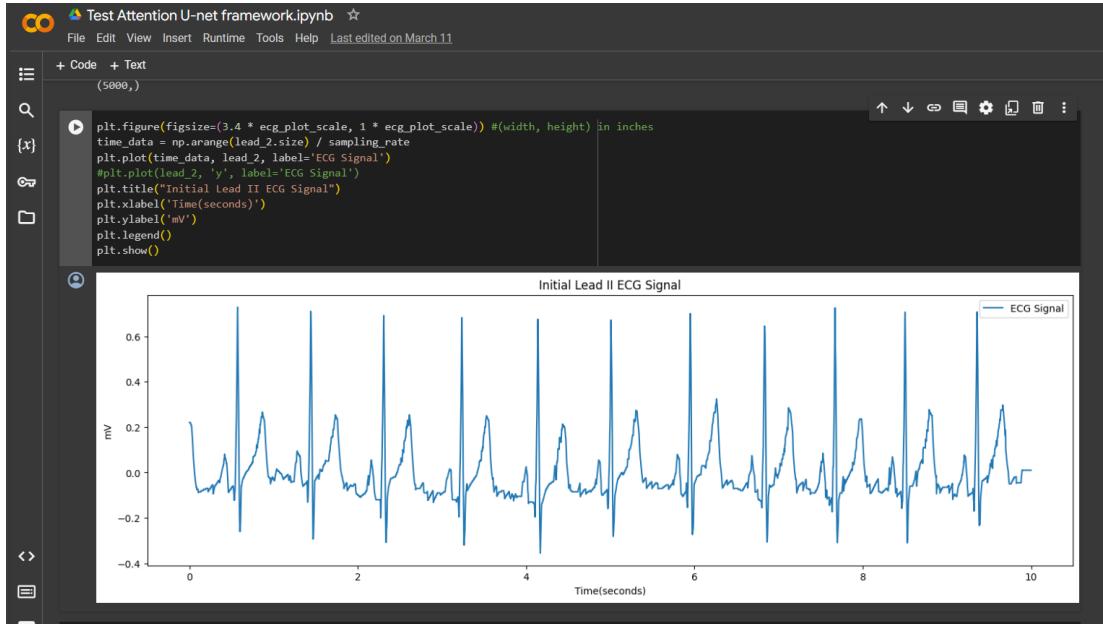


Figure 51: ECG Signal Filtering

File Edit View Insert Runtime Tools Help Last edited on March 11

```
+ Code + Text
[ ] history = model.fit(x = x_train, y = y_train, batch_size=32, epochs=50, verbose=1)

Epoch 1/50
1/1 [=====] - 30s 30s/step - loss: 1.7576 - mae: 0.6997 - accuracy: 0.0992
Epoch 2/50
1/1 [=====] - 0s 493ms/step - loss: 2.8555 - mae: 0.8660 - accuracy: 0.0997
Epoch 3/50
1/1 [=====] - 1s 525ms/step - loss: 1.1275 - mae: 0.5859 - accuracy: 0.1411
Epoch 4/50
1/1 [=====] - 1s 503ms/step - loss: 0.3949 - mae: 0.3436 - accuracy: 0.2177
Epoch 5/50
1/1 [=====] - 1s 524ms/step - loss: 0.1955 - mae: 0.2348 - accuracy: 0.1230
Epoch 6/50
1/1 [=====] - 1s 510ms/step - loss: 0.1229 - mae: 0.1987 - accuracy: 0.1201
Epoch 7/50
1/1 [=====] - 1s 509ms/step - loss: 0.1056 - mae: 0.1868 - accuracy: 0.1548
Epoch 8/50
1/1 [=====] - 1s 507ms/step - loss: 0.0974 - mae: 0.1764 - accuracy: 0.1677
Epoch 9/50
1/1 [=====] - 1s 509ms/step - loss: 0.0957 - mae: 0.1738 - accuracy: 0.1952
Epoch 10/50
1/1 [=====] - 0s 499ms/step - loss: 0.0974 - mae: 0.1752 - accuracy: 0.2223
Epoch 11/50
1/1 [=====] - 1s 508ms/step - loss: 0.0930 - mae: 0.1719 - accuracy: 0.2154
Epoch 12/50
1/1 [=====] - 1s 504ms/step - loss: 0.0825 - mae: 0.1639 - accuracy: 0.2206
Epoch 13/50
1/1 [=====] - 1s 511ms/step - loss: 0.0707 - mae: 0.1542 - accuracy: 0.2662
Epoch 14/50
1/1 [=====] - 0s 498ms/step - loss: 0.0601 - mae: 0.1427 - accuracy: 0.2907
Epoch 15/50
1/1 [=====] - 1s 505ms/step - loss: 0.0535 - mae: 0.1369 - accuracy: 0.2484
Epoch 16/50
1/1 [=====] - 0s 498ms/step - loss: 0.0520 - mae: 0.1350 - accuracy: 0.1535
Epoch 17/50
1/1 [=====] - 1s 504ms/step - loss: 0.0537 - mae: 0.1348 - accuracy: 0.1111
Epoch 18/50
1/1 [=====] - 0s 495ms/step - loss: 0.0548 - mae: 0.1352 - accuracy: 0.0975
Epoch 19/50
```

Figure 52: Model training

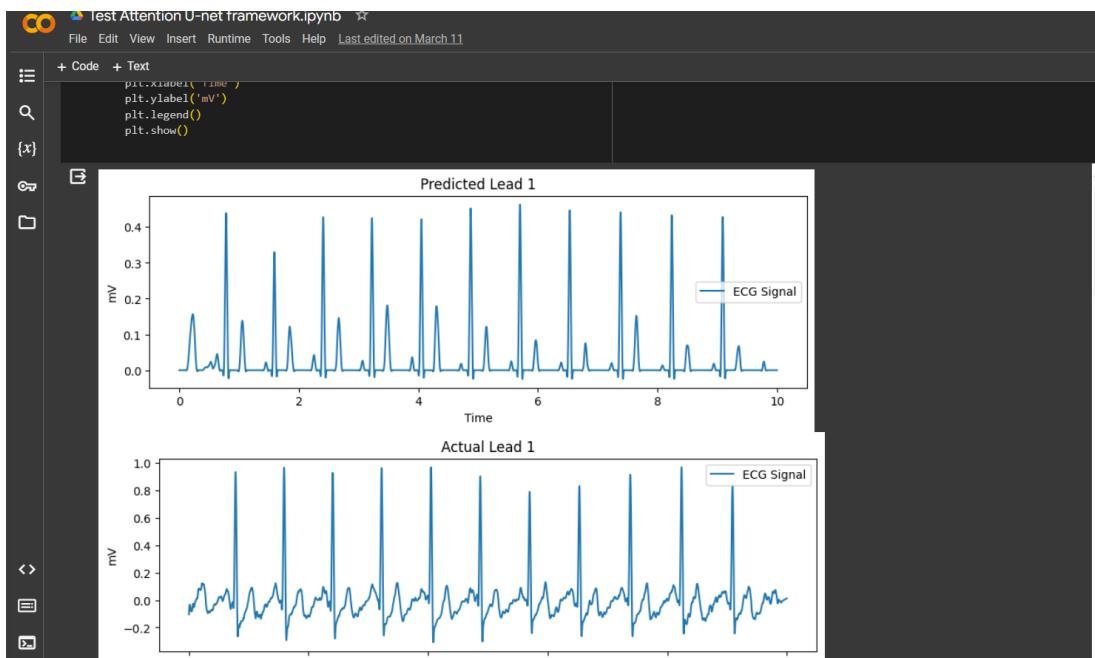


Figure 53: Prediction using trained model

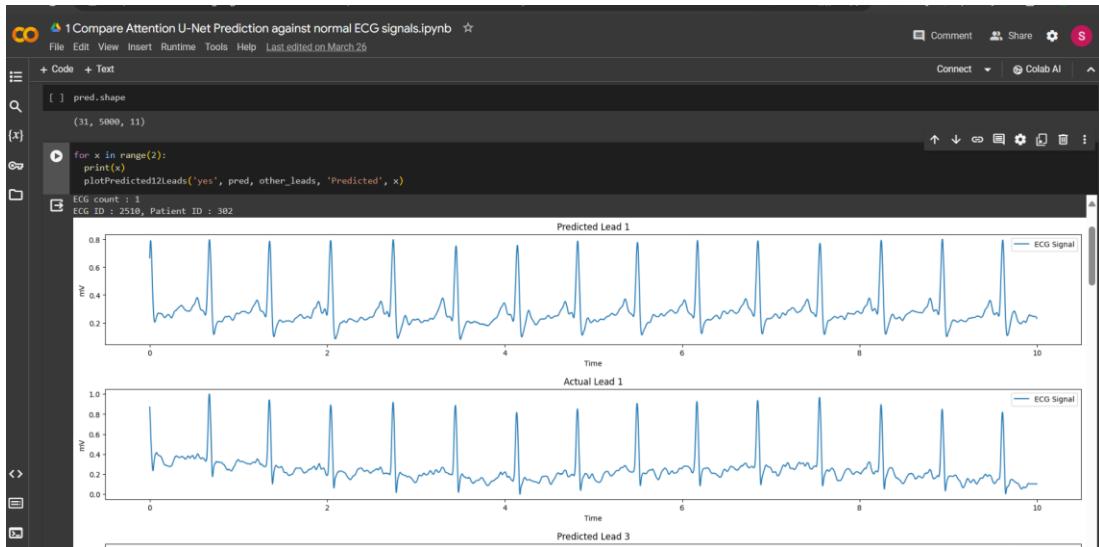


Figure 54: Predicting 12 Lead ECG for normal patient

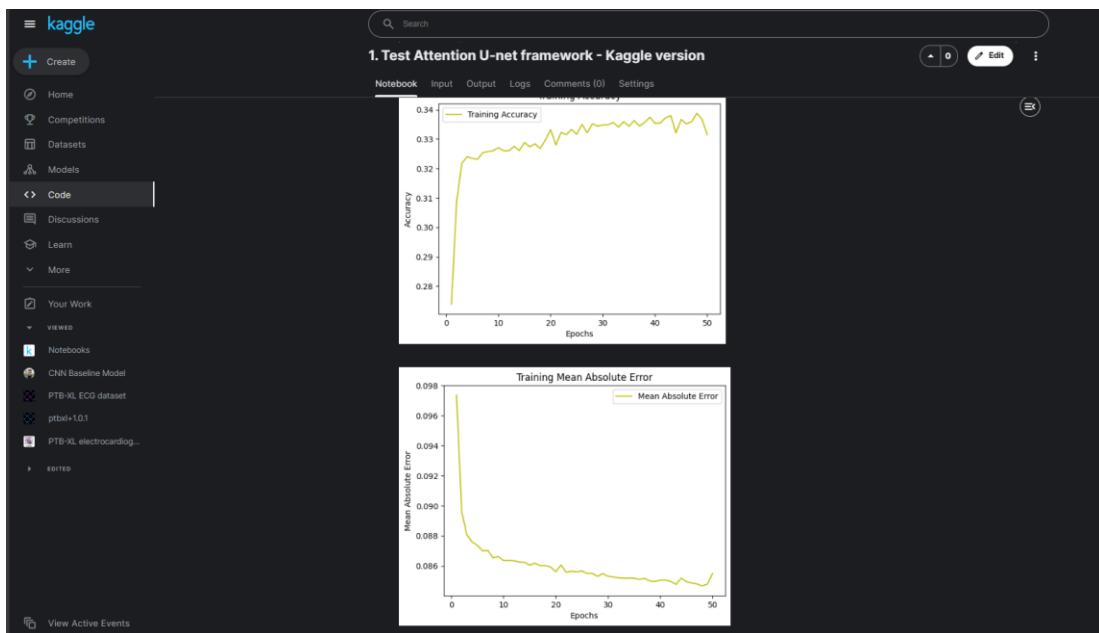


Figure 55: Training model using Kaggle

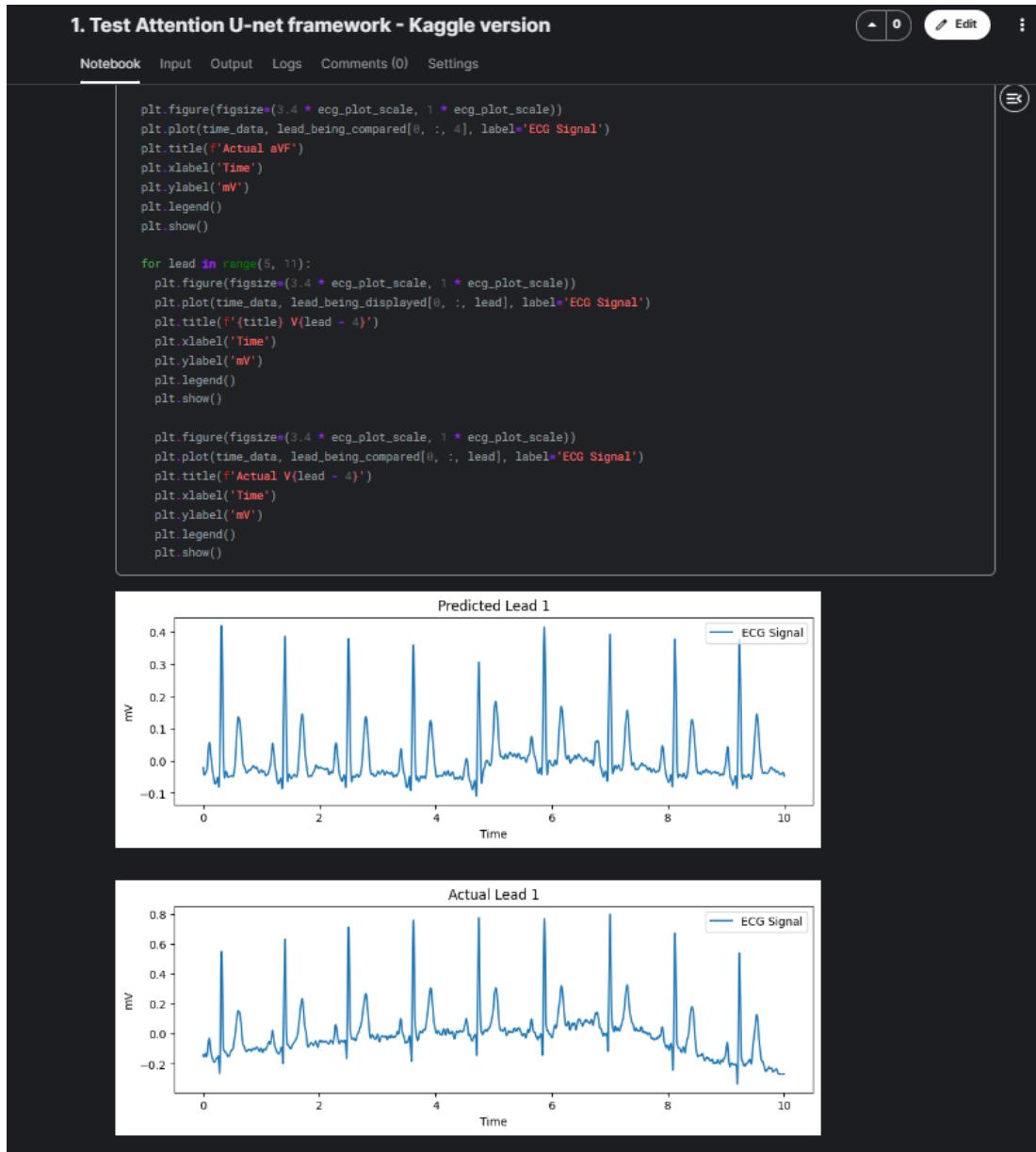


Figure 56: Predictions using model trained in Kaggle

This screenshot shows the 'Your Work' section of the Kaggle platform. The top navigation bar includes 'Overview', 'Collections', 'Code', 'Datasets', 'Models' (which is the active tab), 'Competitions', 'Discussions', and 'Bookmarks'. A search bar labeled 'Search Your Work' is present, along with filter options for 'All Filters', 'Owner', 'Privacy', 'Size', 'Task', and 'Language'. The main content area is titled 'Your Models (5)' and lists five entries:

- Model12-normalized (Private - sathirawijeratne - 1 Variation - 0 Notebooks)
- Models (Private - sathirawijeratne - 0 Variations - 0 Notebooks)
- model5-100-rec-my-new (Private - sathirawijeratne - 2 Variations - 0 Notebooks)
- ecg-lead-II-to-rest-of-11-leads (Private - sathirawijeratne - 1 Variation - 0 Notebooks)

Each model entry has a checkbox, a preview icon, and a detailed card showing its name, owner, variations, and notebooks.

Figure 57: Models trained and saved in Kaggle

This screenshot shows the 'Your Work' section of the Kaggle platform, with the 'Datasets' tab selected. The top navigation bar includes 'Overview', 'Collections', 'Code', 'Datasets' (active), 'Models', 'Competitions', 'Discussions', and 'Bookmarks'. A search bar labeled 'Search Your Work' is present, along with filter options for 'All Filters', 'Clear All', 'Created by you', 'Privacy', 'Type', 'Size', 'License', and 'Tags'. The main content area is titled 'Your Datasets (9)' and lists two entries:

- 3.lead 1-lead v1-v6 y data (Sathira Wijeratne - Updated 6 days ago)
- 4.lead 1-lead v1-v6 y data (Sathira Wijeratne - Updated 6 days ago)

Each dataset entry has a checkbox, a preview icon, and a detailed card showing its name, creator, last update, and file size.

Figure 58: Preprocessed datasets and outputs saved in Kaggle

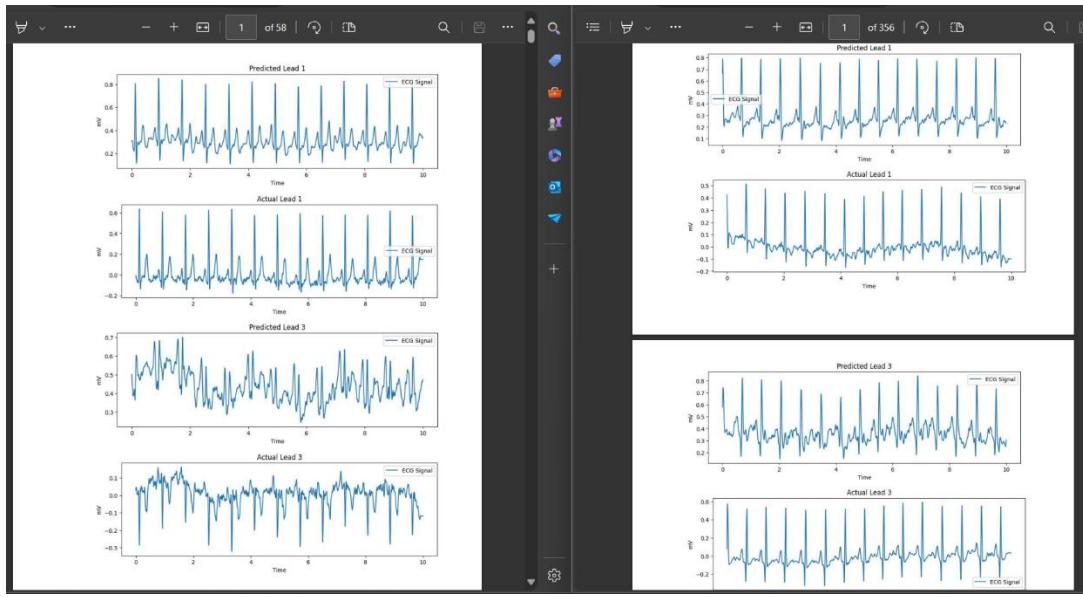


Figure 59: Plots of Actual and predicted leads of Normal and Myocardial Infarction patients to be examined by doctors for reliability.

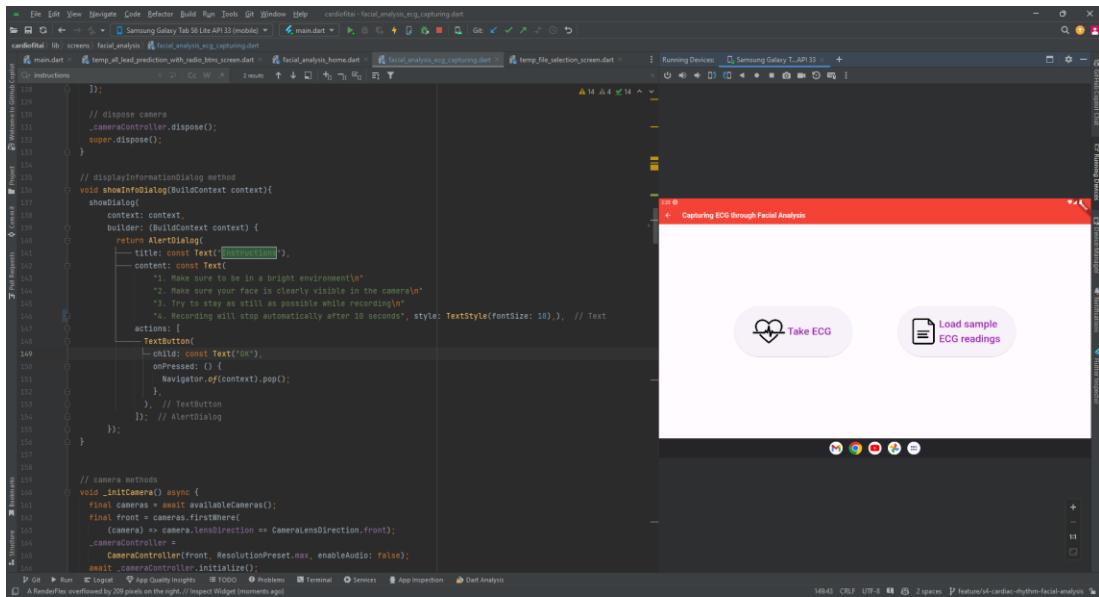


Figure 60: Mobile application development.

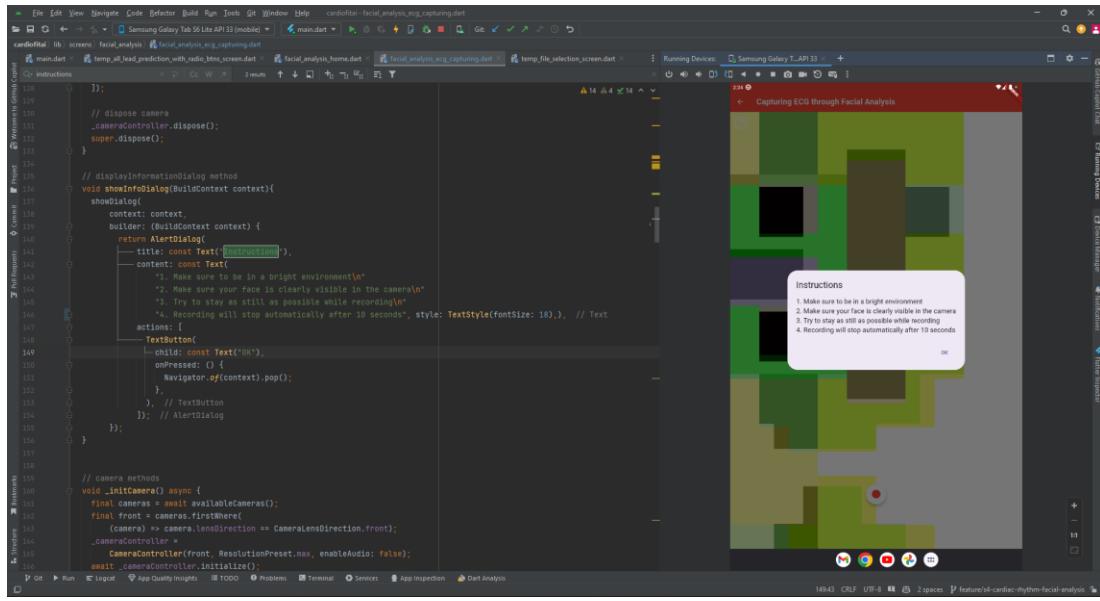


Figure 61: Mobile application development.

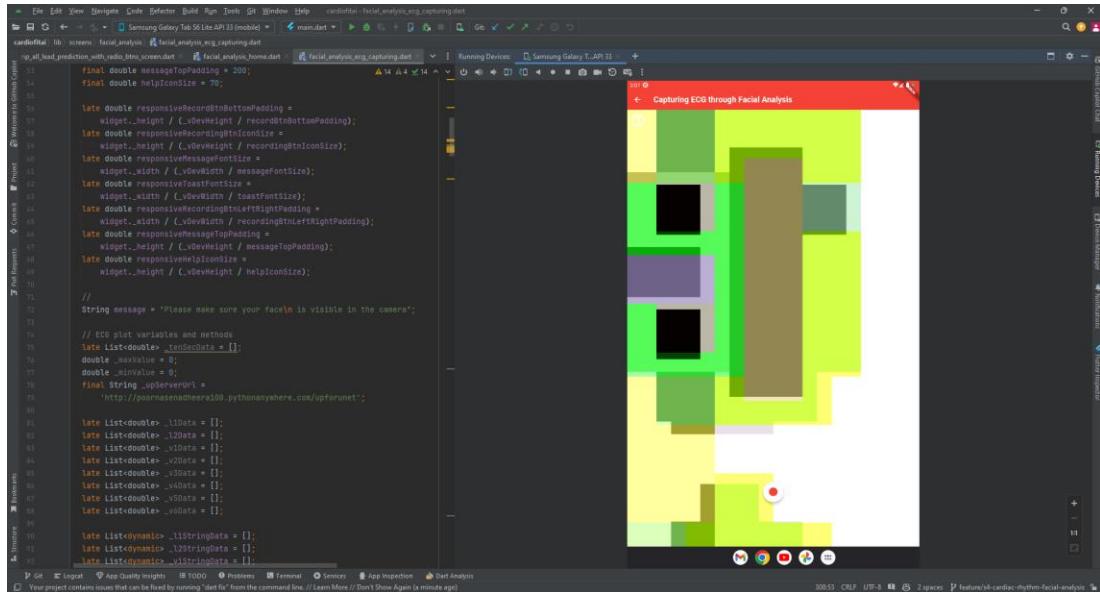


Figure 62: Development of Mobile Application

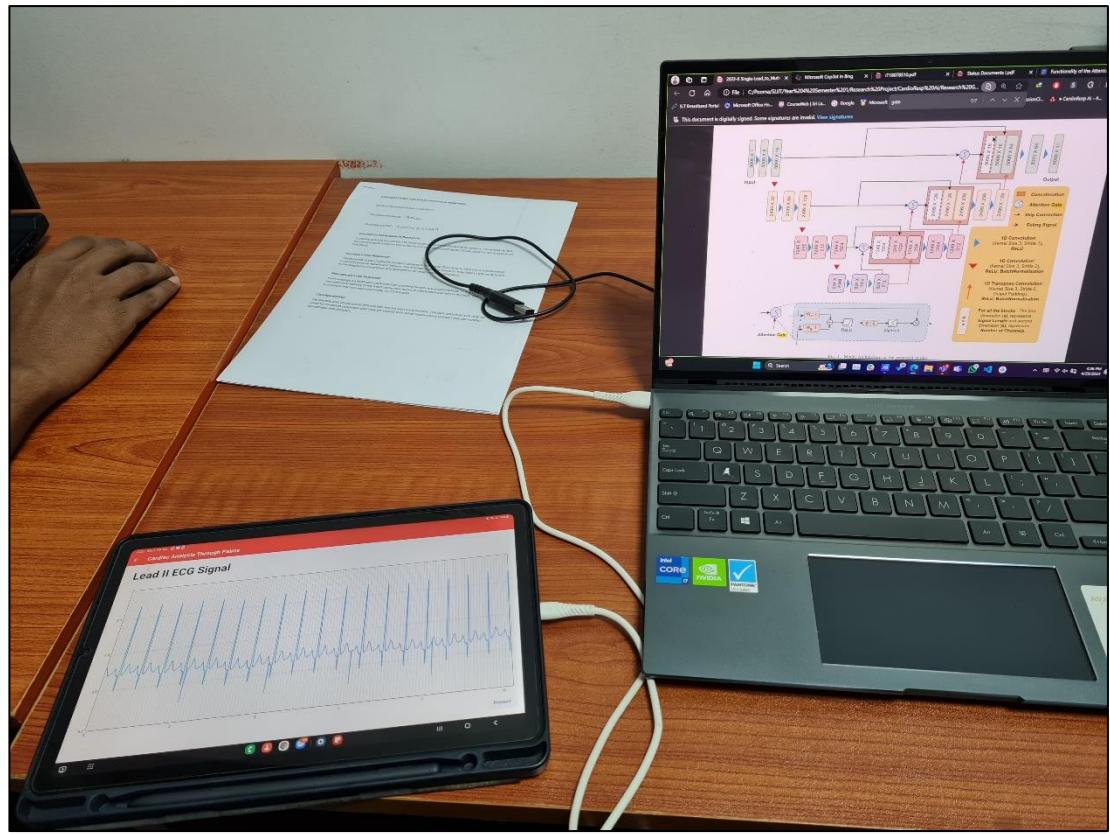


Figure 63: Application running on actual device