



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

R24-019

Status Document 2

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# 1. SCREENSHOTS OF THE PROJECT MANAGEMENT TOOL

The screenshot shows a Kanban board interface for the project 'CardioResp Ai'. The board is divided into four columns: 'To do' (4 tasks), 'Doing' (2 tasks), 'Done' (17 tasks), and 'Competition' (4 tasks). Each task card includes a title, description, due date, and assignee. A sidebar on the left provides navigation links for Insights, Reporting, Portfolios, Goals, Projects, and Team.

Column	Task Description	Due Date	Assignee
To do	Make test cases - Use Testing tools (Test Driven Development)	Apr 27	Sa
To do	Check on the data security side of the application	Jan 25	HC
To do	Check firebase database (real time or firestore and make the configurations)	Jan 23	
To do	WSA Competition		
Doing	Finalize the technology requirement for 3D Visualization	Jan 27	Sa
Doing	Finalize the technology requirement to make Simulation of x-ray	Jan 27	HC
Done	flutter application	Feb 11	Sa
Done	Pass the ECG pattern to web application interface	Feb 20	Sa
Done	Update about the technical Stack	Jan 22	HC
Done	Finalize the technology requirement of taking ECG measure from Hand and Facial recognition	Jan 27	Sa
Competition	APICTA Competition Timeline Check	Jul 1	Sa
Competition	NBQSA Time Line		
Competition	ESvabamani	Apr 6	Sa
Competition	ICT Innovative Service Awards	Nov 1	Sa

Figure 1: Asana Board - Kanban

The screenshot shows a Gantt chart interface for the project 'CardioFit AI'. The chart displays tasks over a timeline from April 2024 to May 2024. Tasks are categorized by status: 'To do' (4 tasks), 'Doing' (4 tasks), and 'Done' (4 tasks). Each task is represented by a horizontal bar indicating its start and end dates and duration. A sidebar on the left provides navigation links for Insights, Reporting, Portfolios, Goals, Projects, and Team.

Task Name	Date Range	Duration
Make test cases - Use Testing t	Apr 27	
Check on the data security side	Jan 17 – 25	7 days
Check firebase database (real t	Jan 21 – 23	2 days
WSA Competition		
Update about the technical Sta	Jan 15 – 22	6 days
Finalize the technology require	Jan 20 – 27	5 days
Finalize the technology require	Jan 27	
Finalize the technology require	Jan 20 – 27	5 days

Figure 2: Asana Board - Gantt Chart

## 2. SCREENSHOTS OF GOOGLE DRIVE FOLDERS

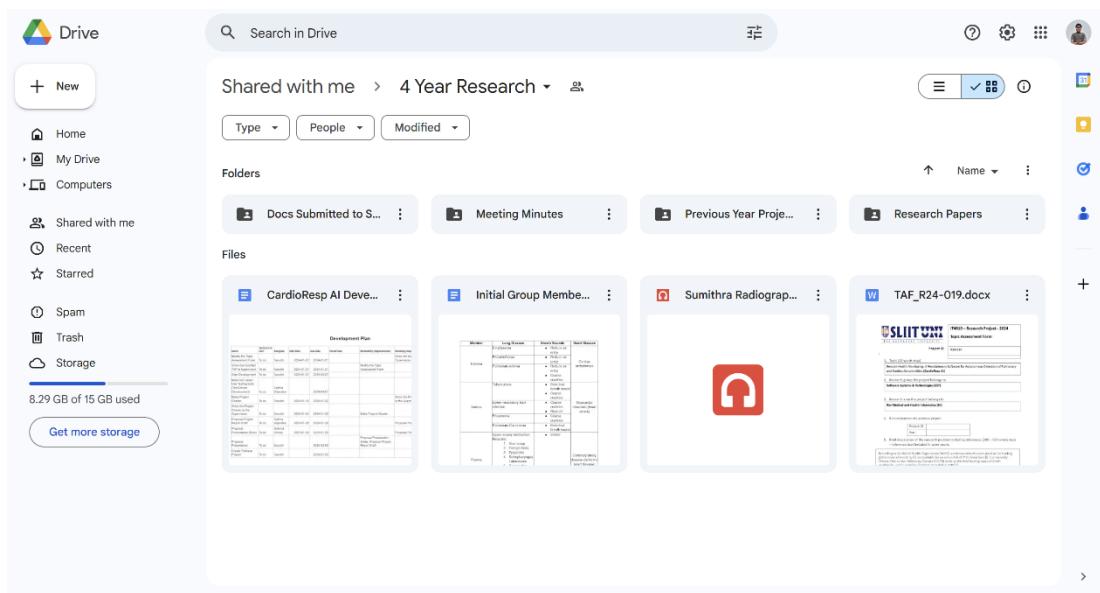


Figure 3: Google Drive shared folder

### 3. SCREENSHOTS OF THE MEETING MINUTES

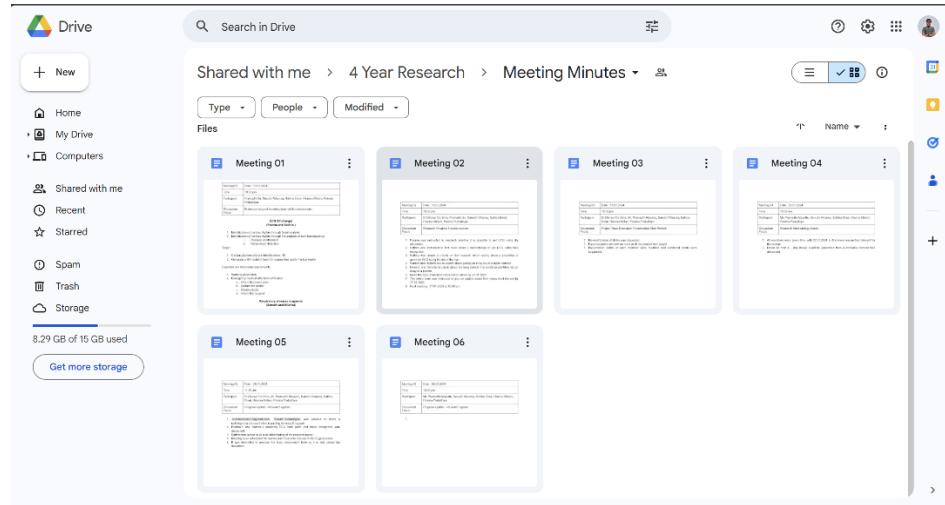


Figure 4: Meeting minutes shared folder

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 5: 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 6: 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 7: 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 8: 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 9: Meeting minutes 5

Meeting 06	Date : 06.02.2024
Time	10.00 pm
Participant	Mr. Pramadhi Atapattu, Sanuthi Vihansa, Sathira Dinal, Hilarina Melani, Poorna Prabathiya
Discussion Focus	Progress update - Research update

1.

Figure 10: Meeting minutes 6

## 4. SCREENSHOTS OF THE TEAMS MEETING HISTORY

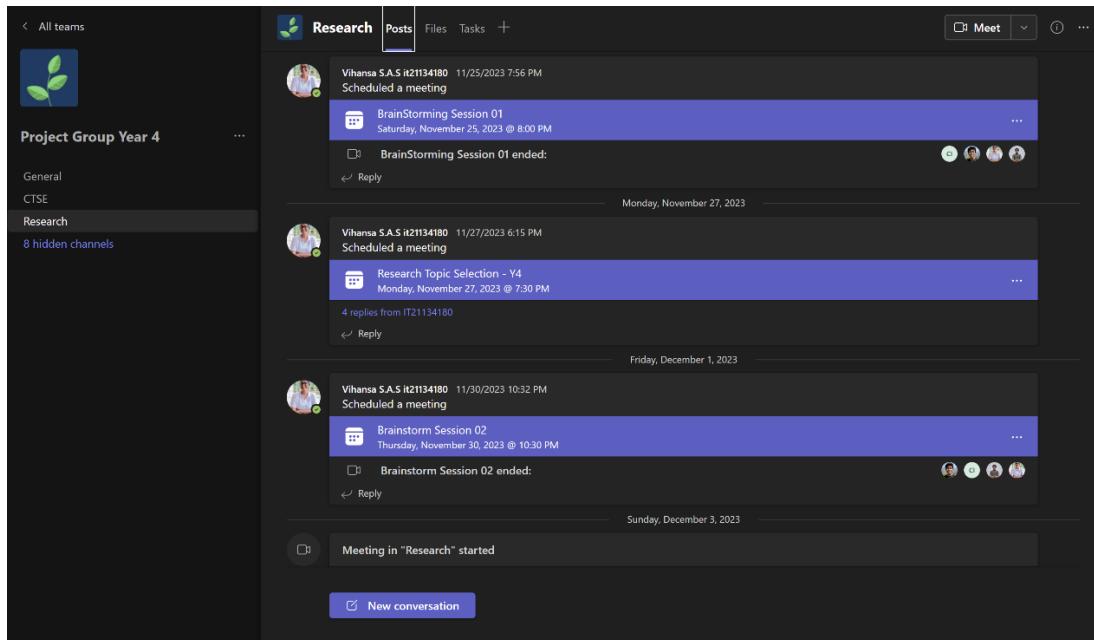


Figure 11: MS Teams meeting history 1

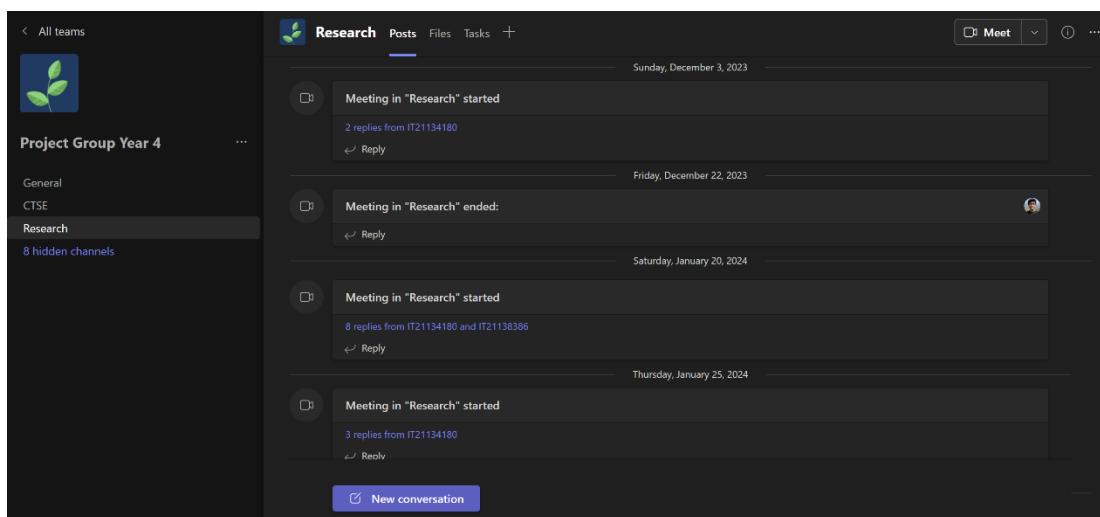


Figure 12: MS Teams meeting history 2

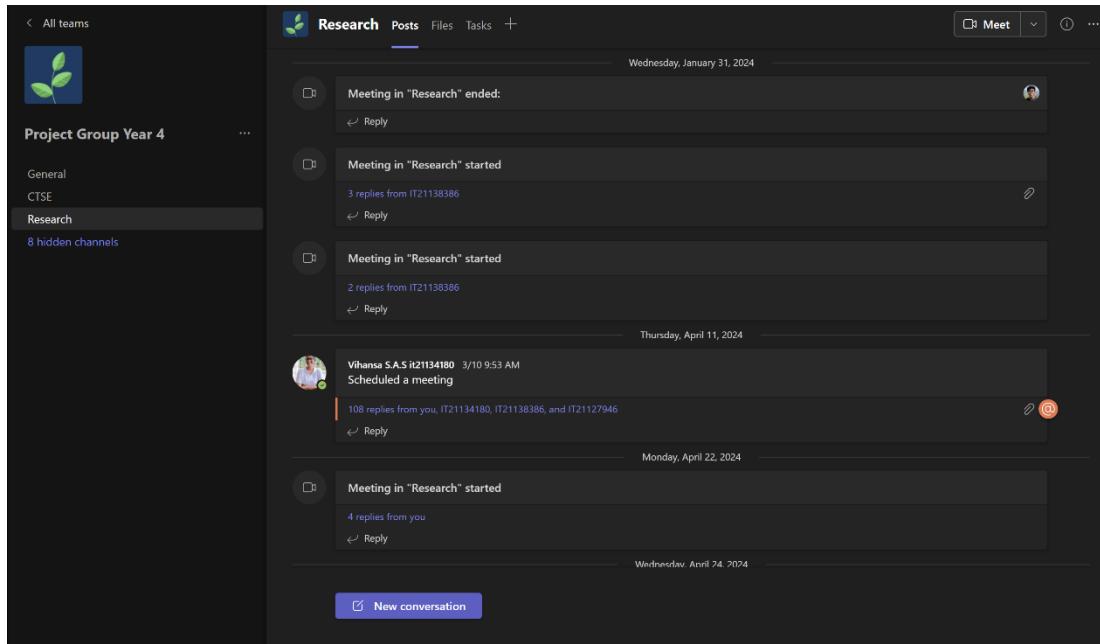


Figure 13: MS Teams meeting history 3

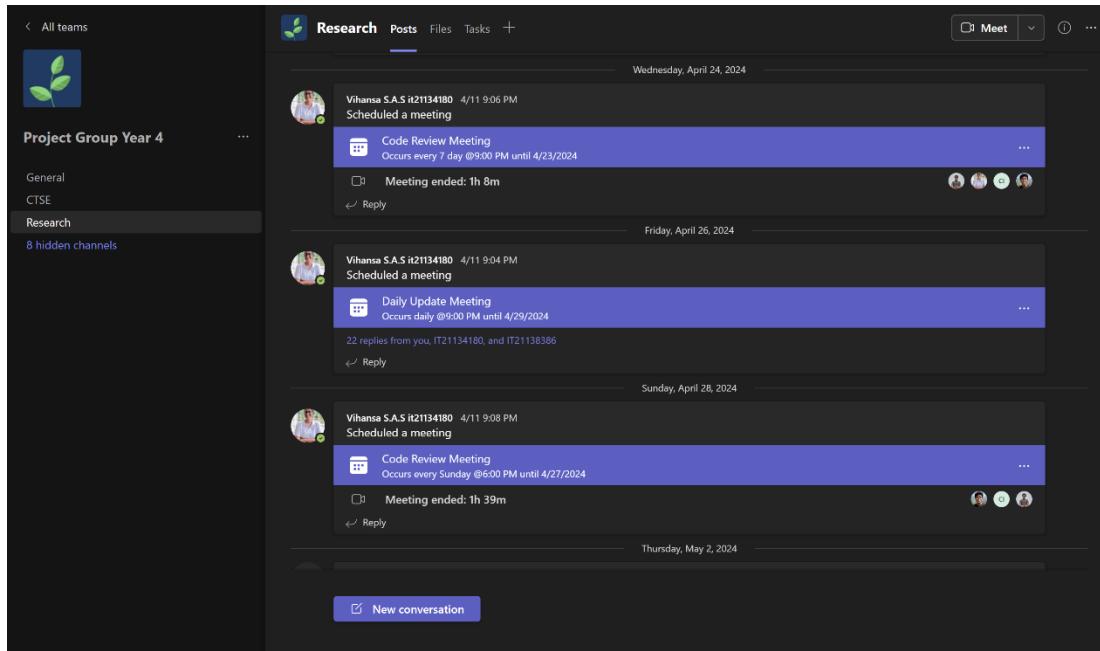


Figure 14: MS Teams meeting history 4

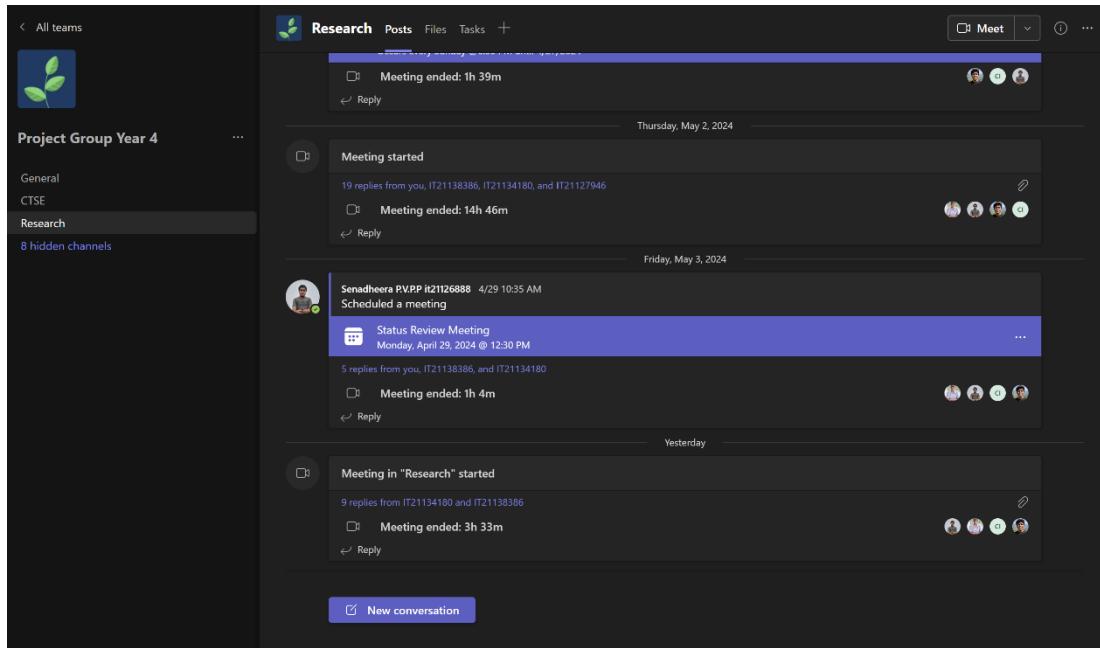


Figure 15: MS Teams meeting history 5

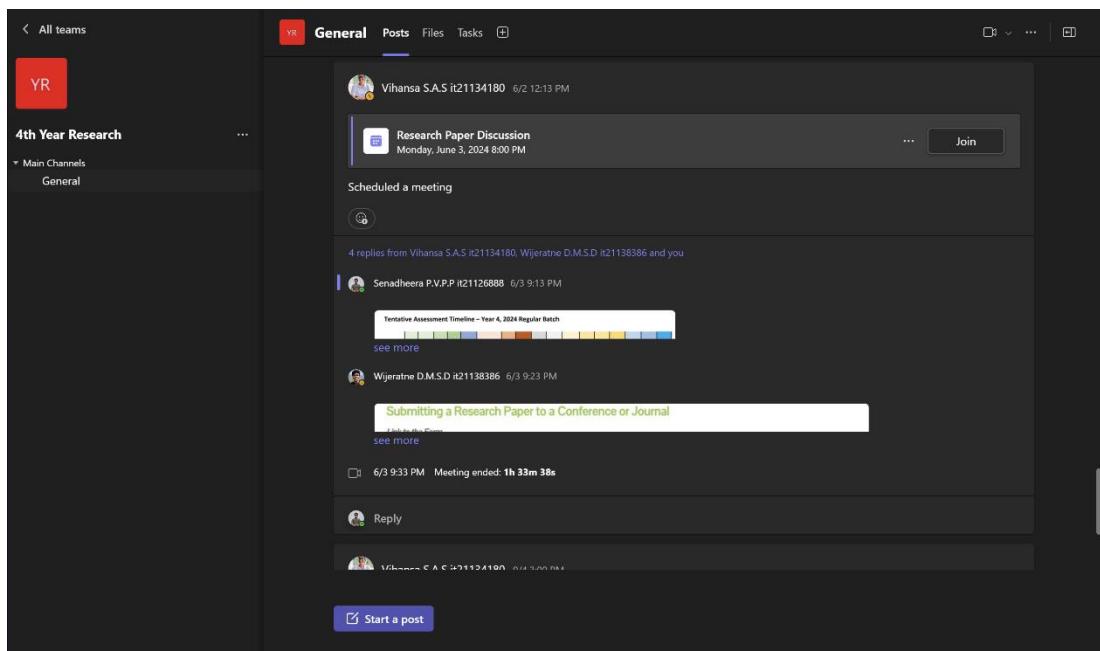


Figure 16: MS Teams meeting history 6

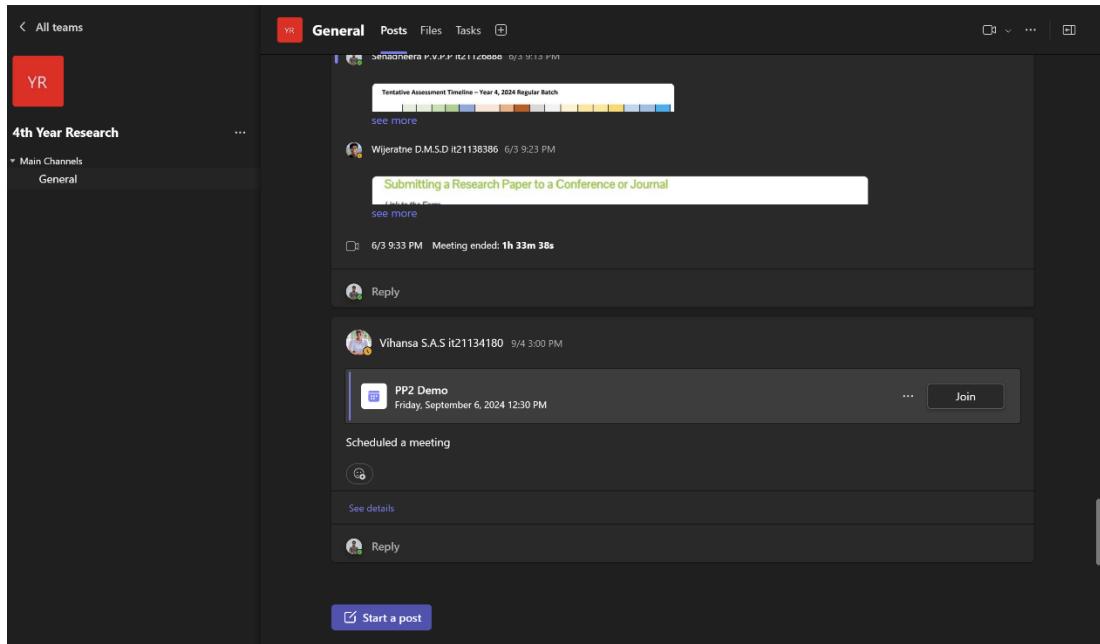


Figure 17: MS Teams meeting history 7

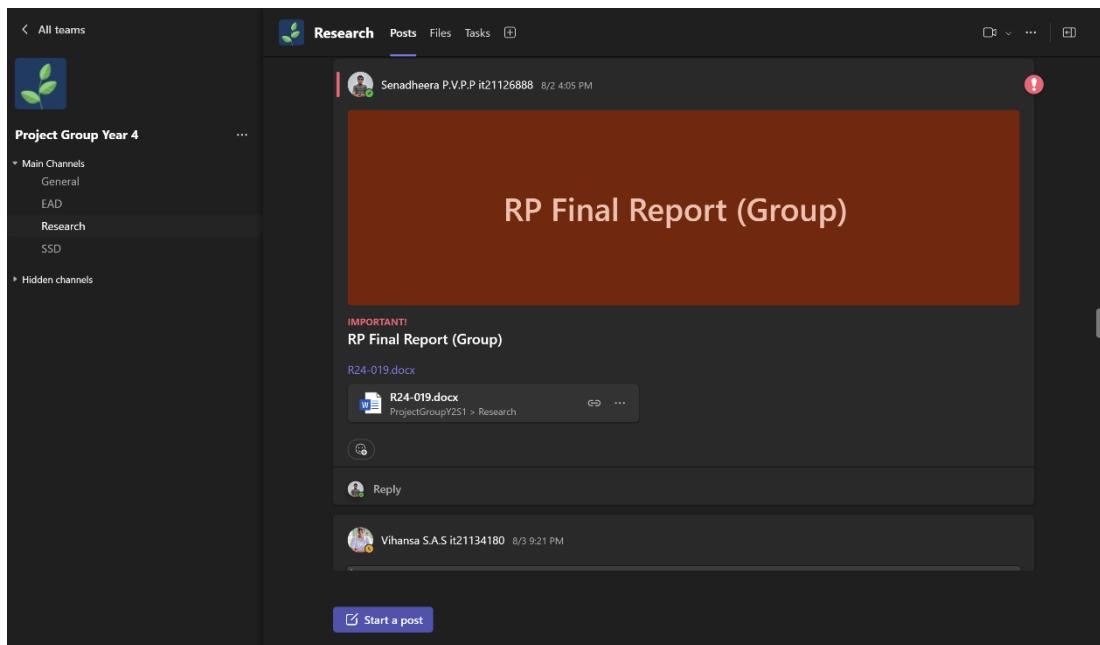


Figure 18: MS Teams meeting history 8

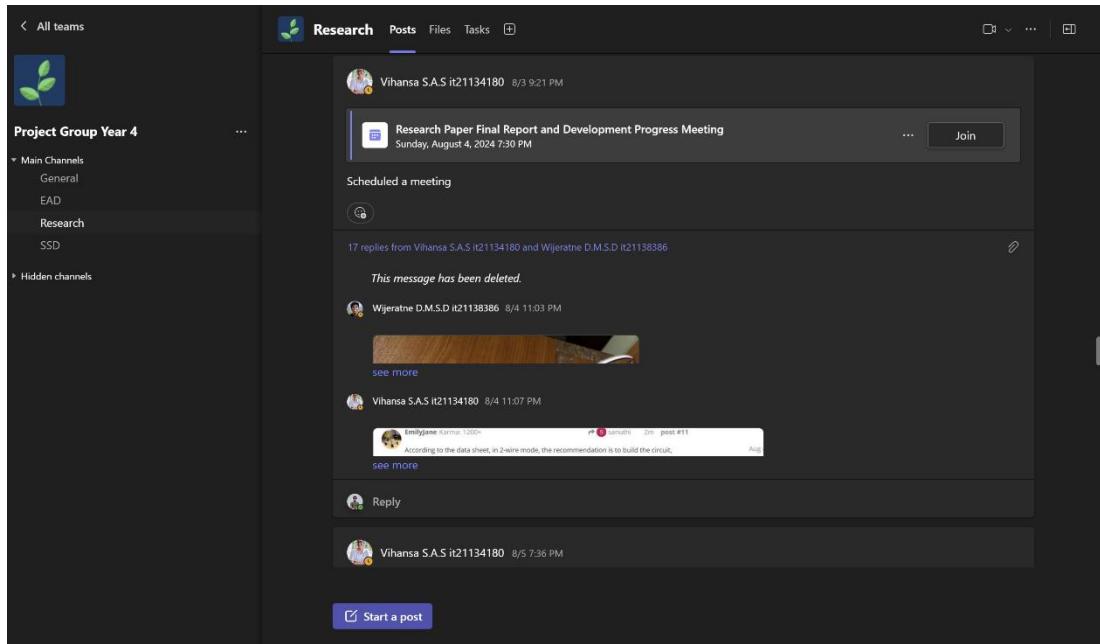


Figure 19: MS Teams meeting history 9

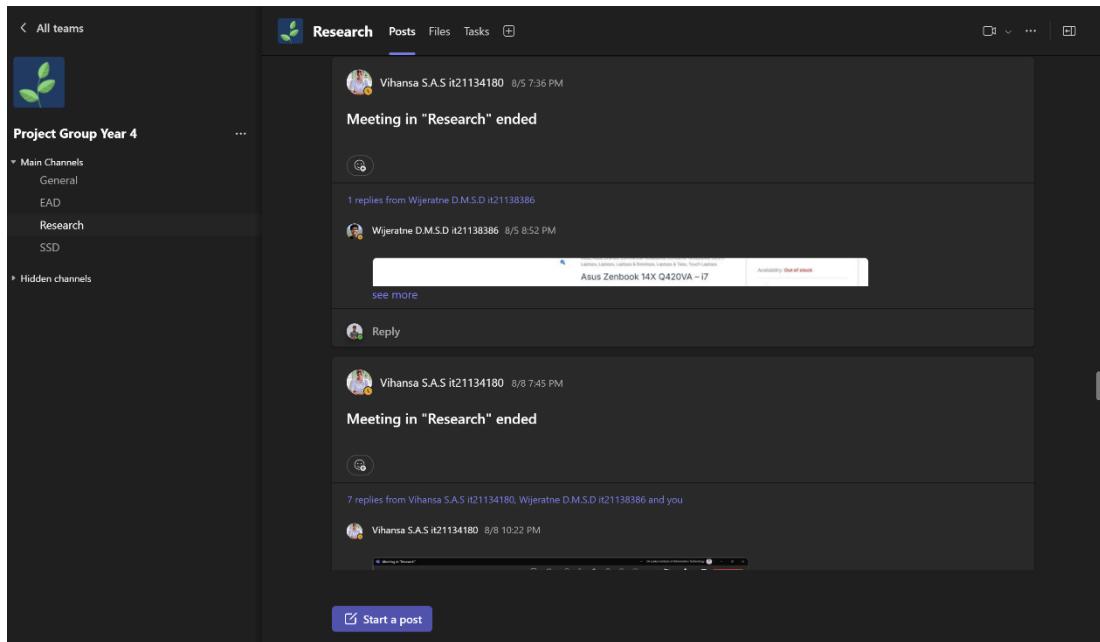


Figure 20: MS Teams meeting history 10

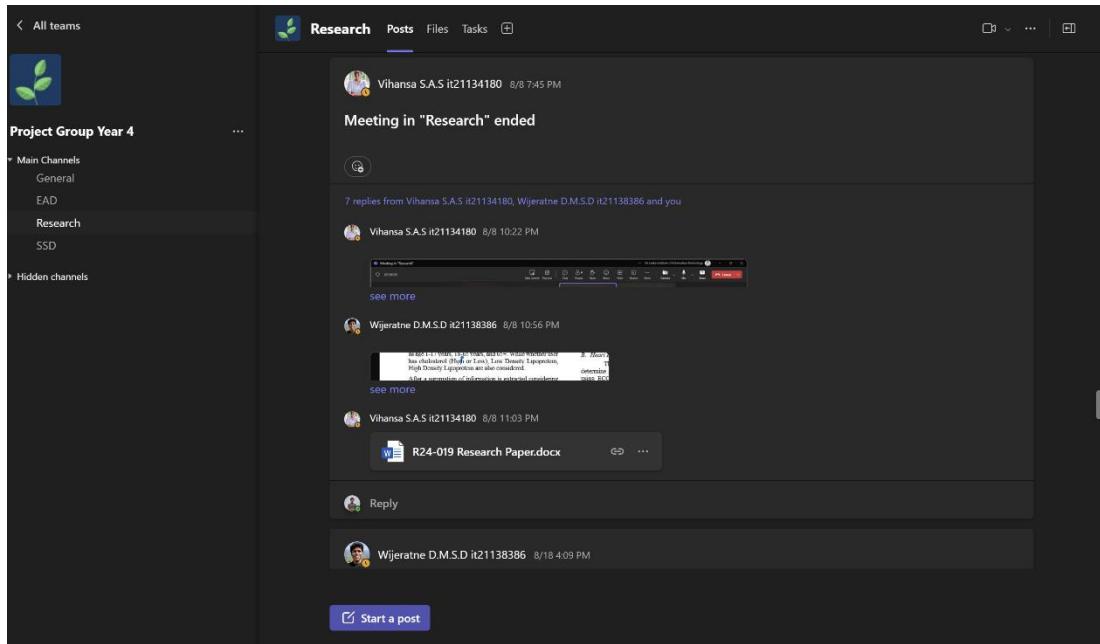


Figure 21: MS Teams meeting history 11

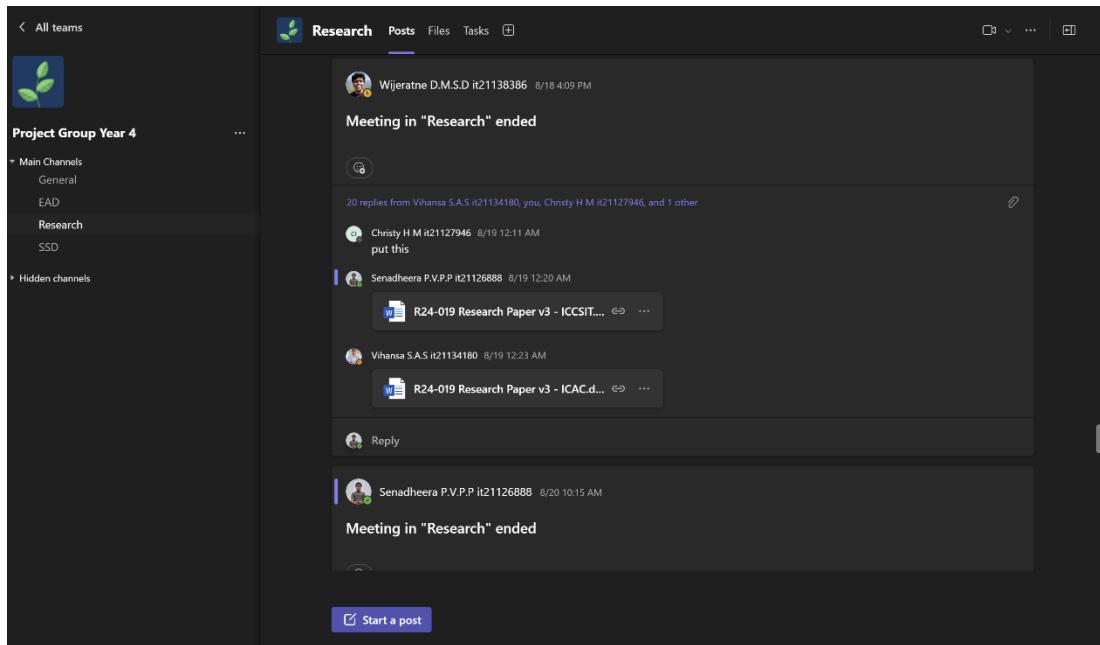


Figure 22: MS Teams meeting history 12

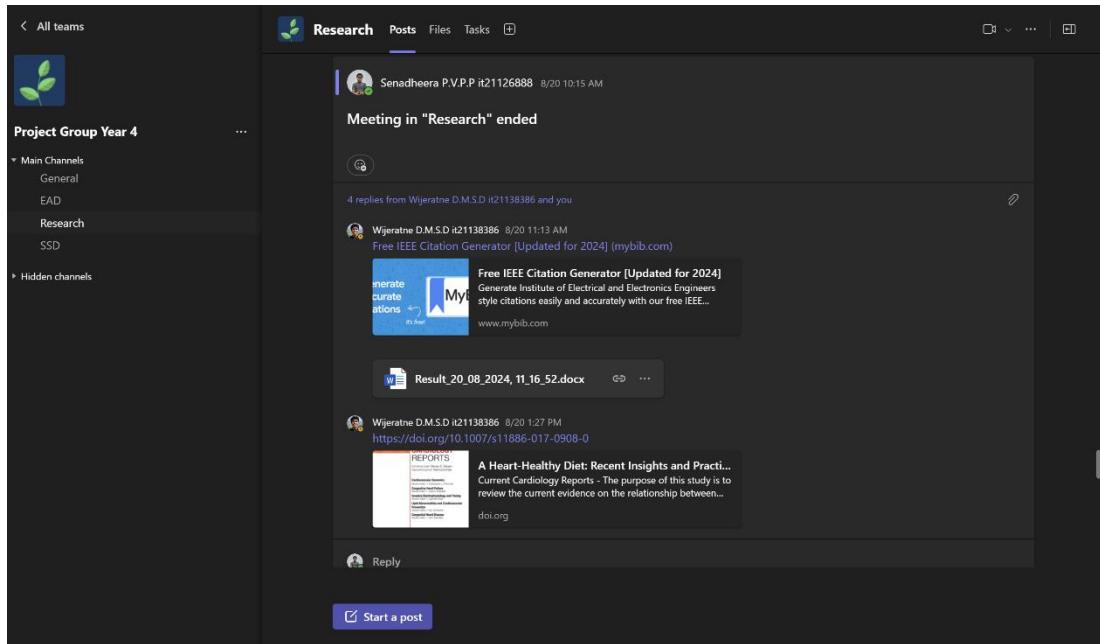


Figure 23: MS Teams meeting history 13

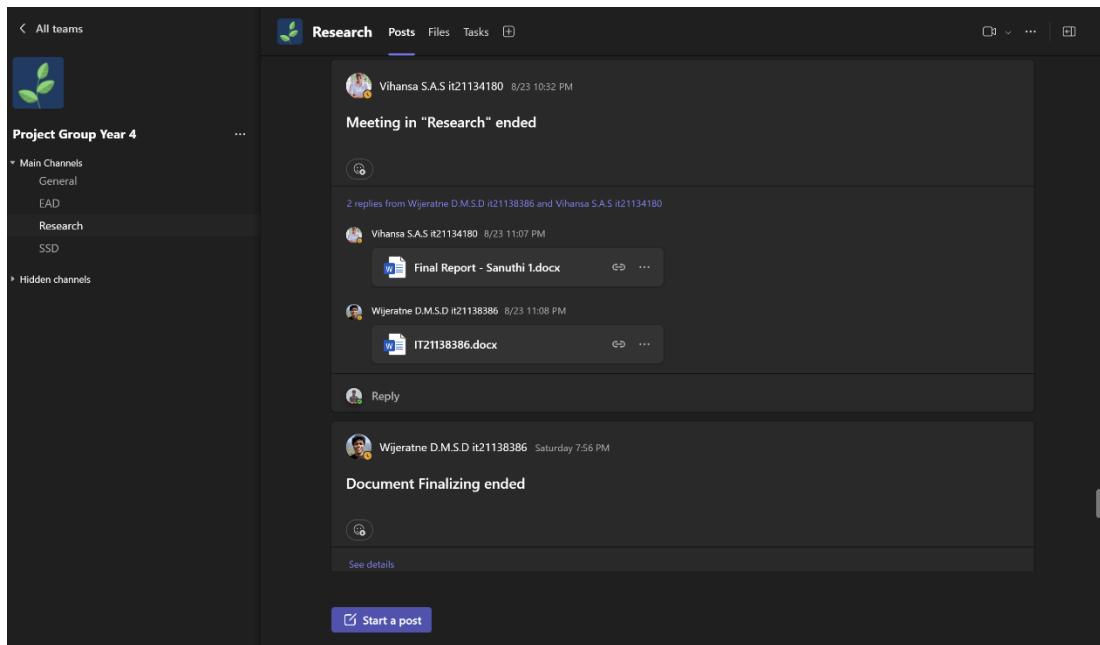


Figure 24: MS Teams meeting history 14

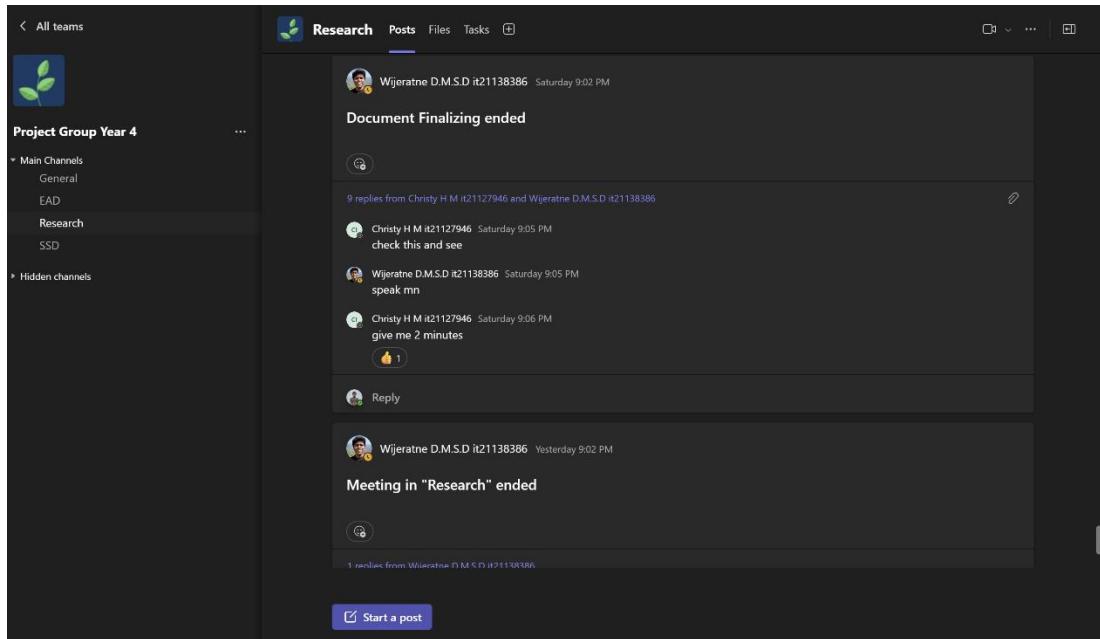


Figure 25: MS Teams meeting history 15

## 5. SCREENSHOTS OF THE WHATSAPP GROUP

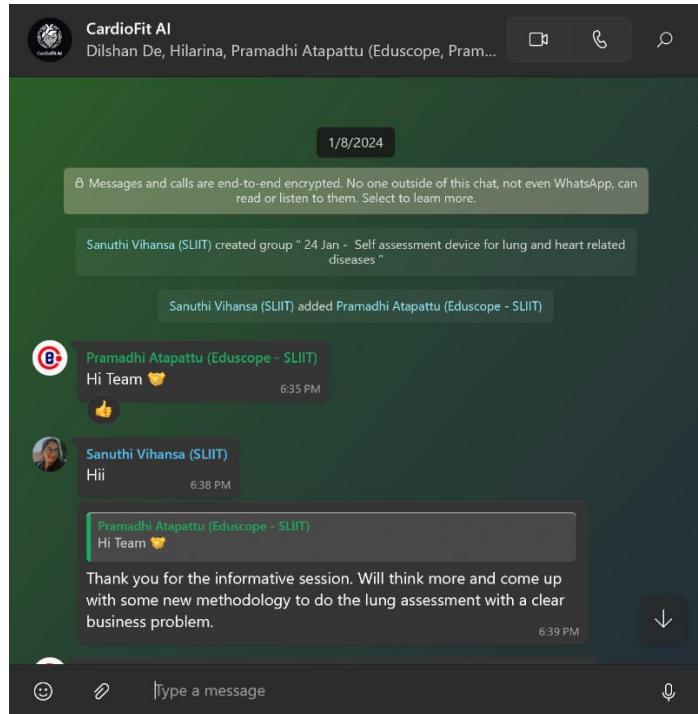


Figure 26: WhatsApp group screenshot 1

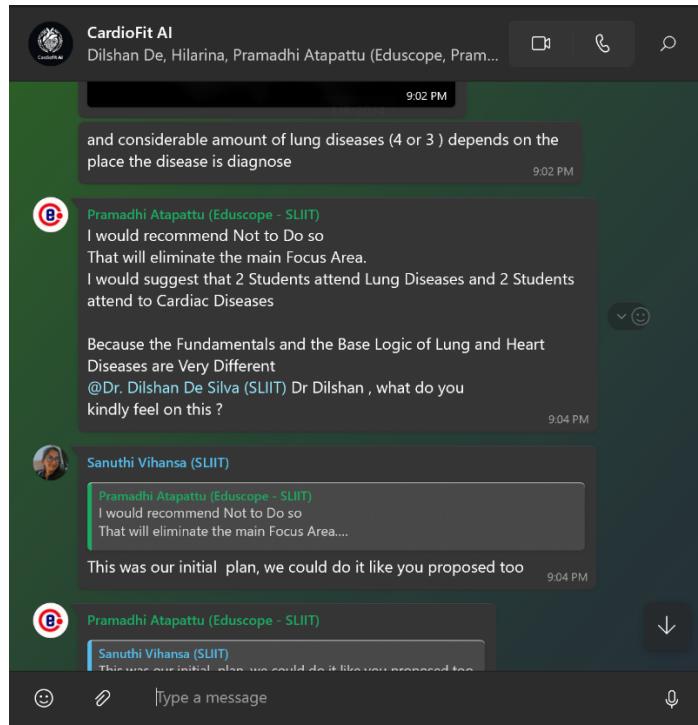


Figure 27: WhatsApp group screenshot 2

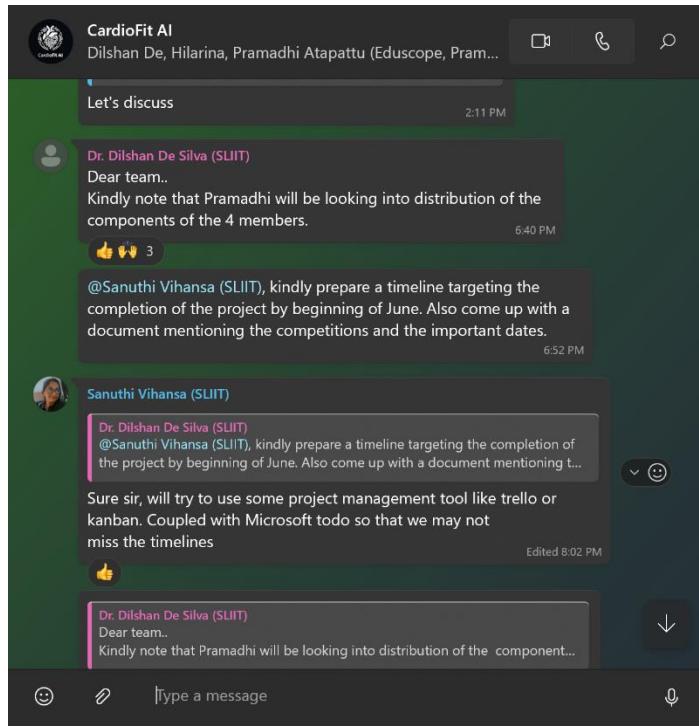


Figure 28: WhatsApp group screenshot 3

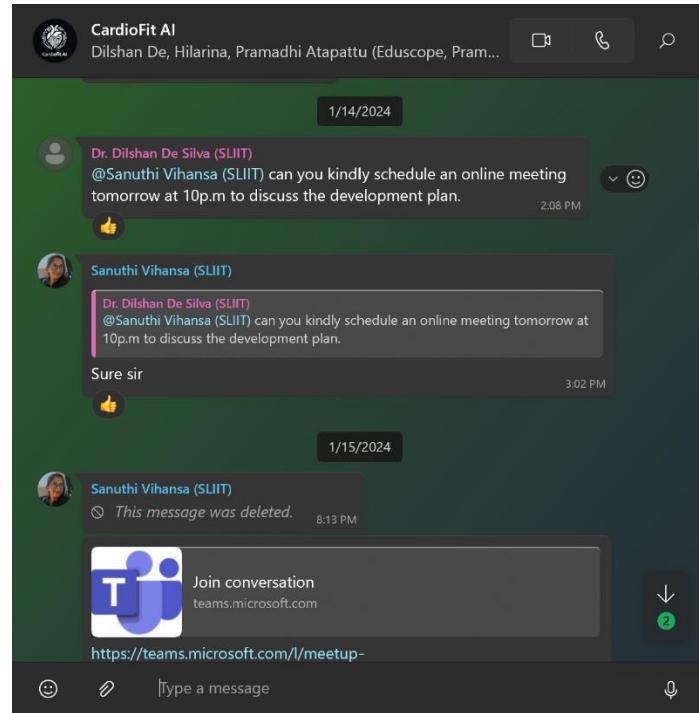


Figure 29: WhatsApp group screenshot 4

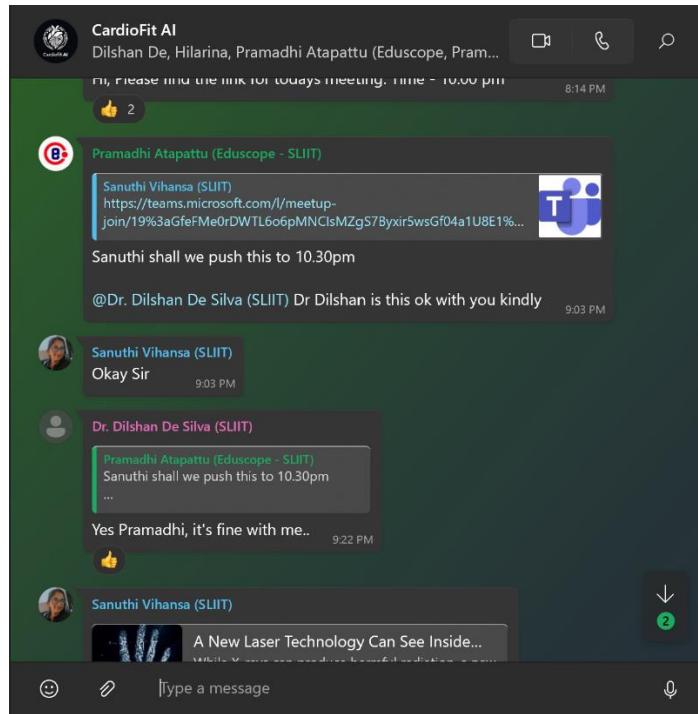


Figure 30: WhatsApp group screenshot 5

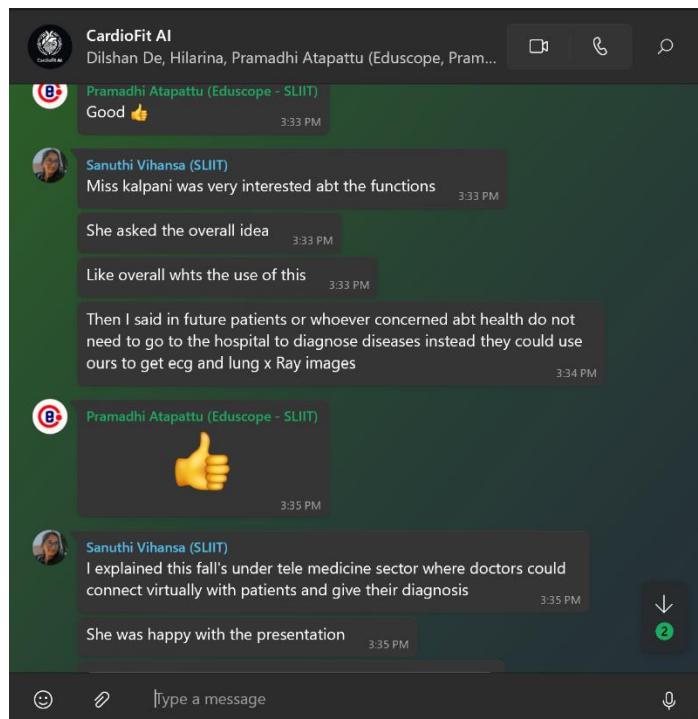


Figure 31: WhatsApp group screenshot 6

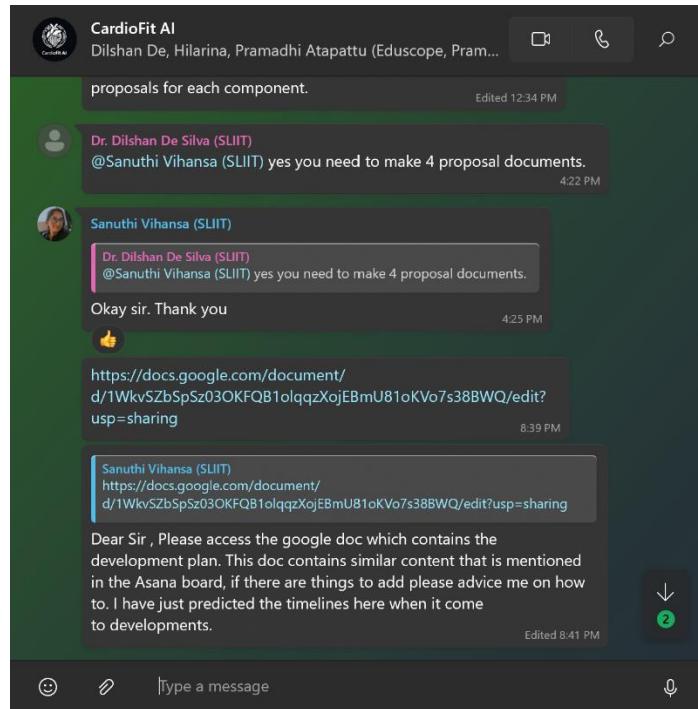


Figure 32: WhatsApp group screenshot 7

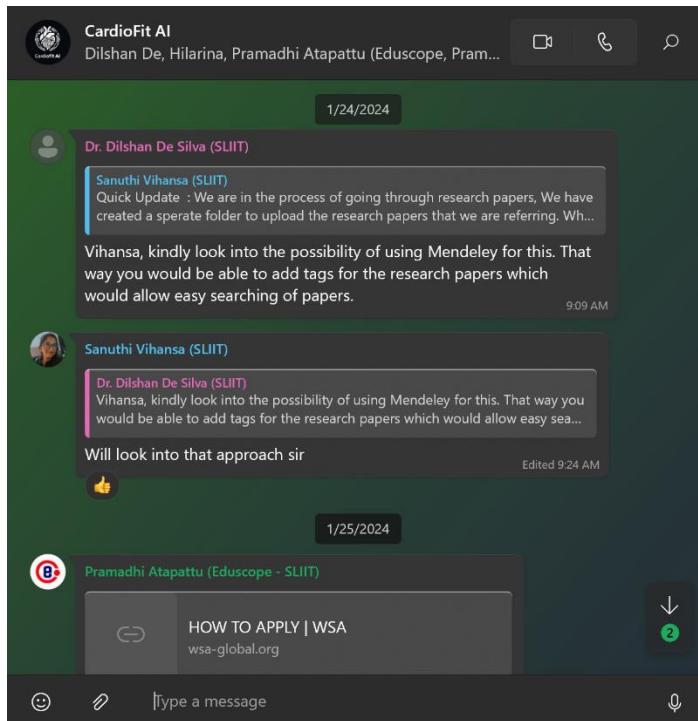


Figure 33: WhatsApp group screenshot 8

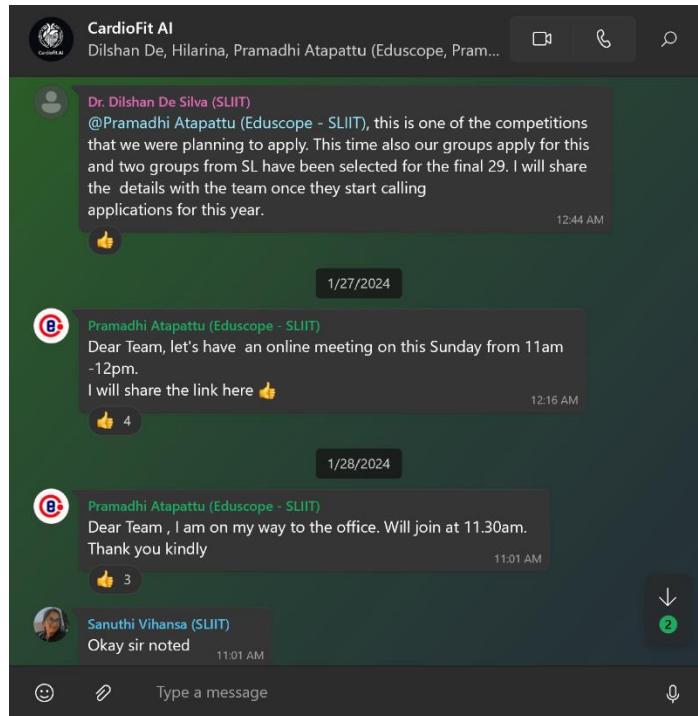


Figure 34: WhatsApp group screenshot 9

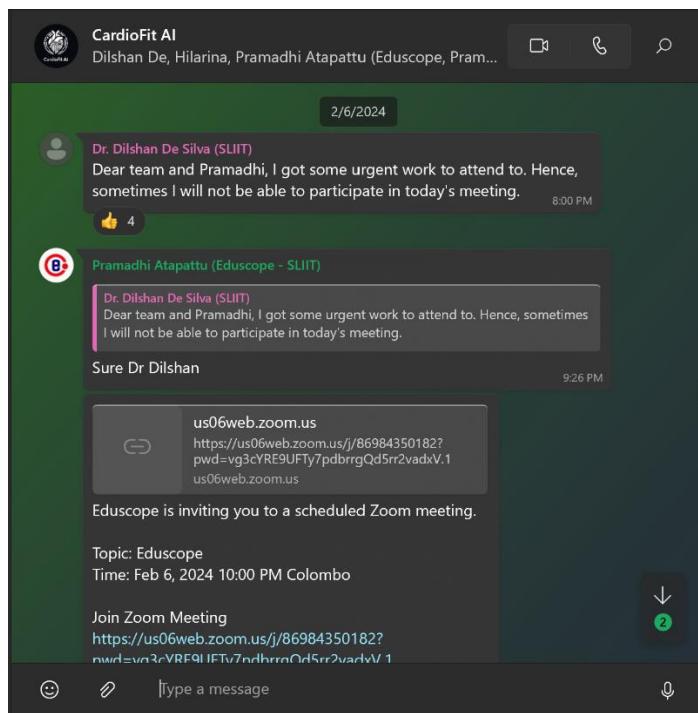


Figure 35: WhatsApp group screenshot 10

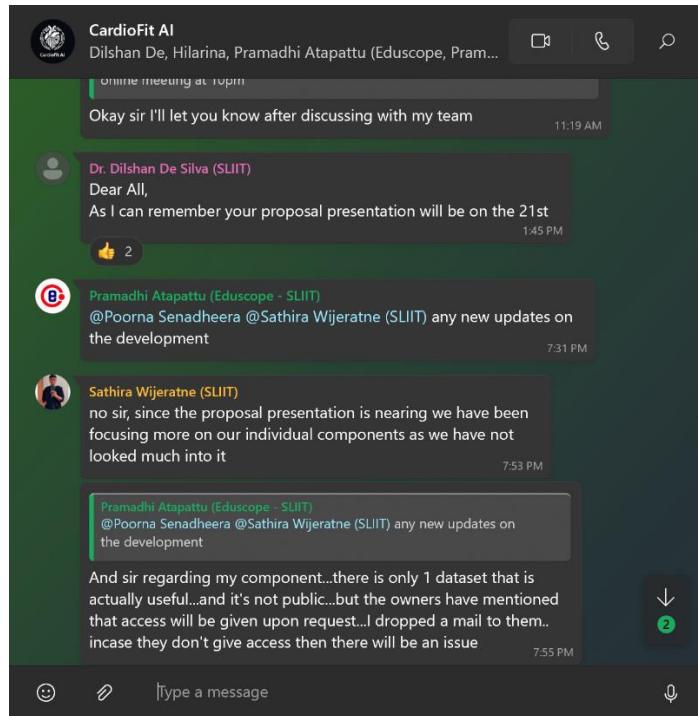


Figure 36: WhatsApp group screenshot 11

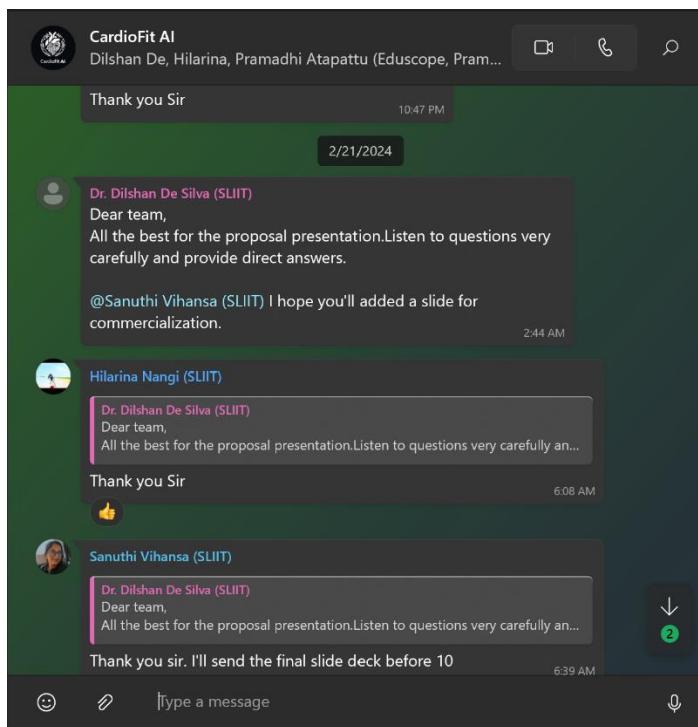


Figure 37: WhatsApp group screenshot 12

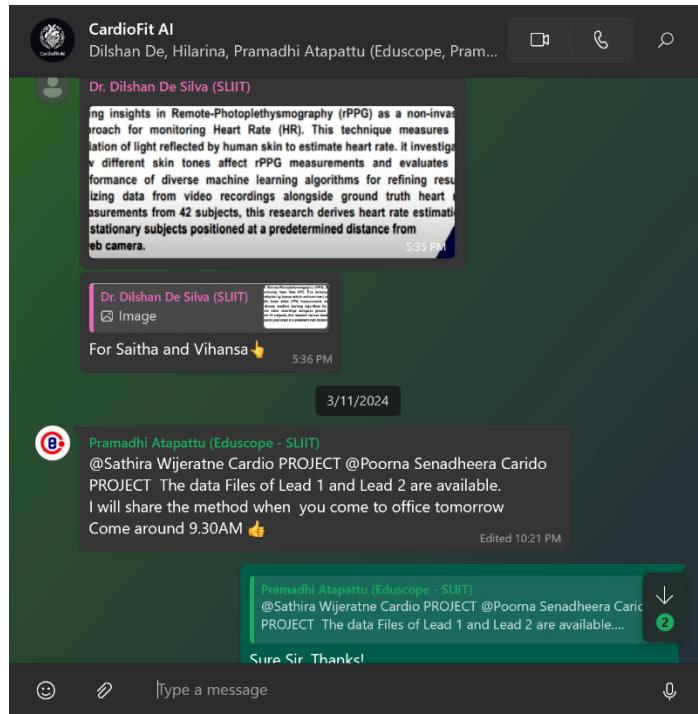


Figure 38: WhatsApp group screenshot 13

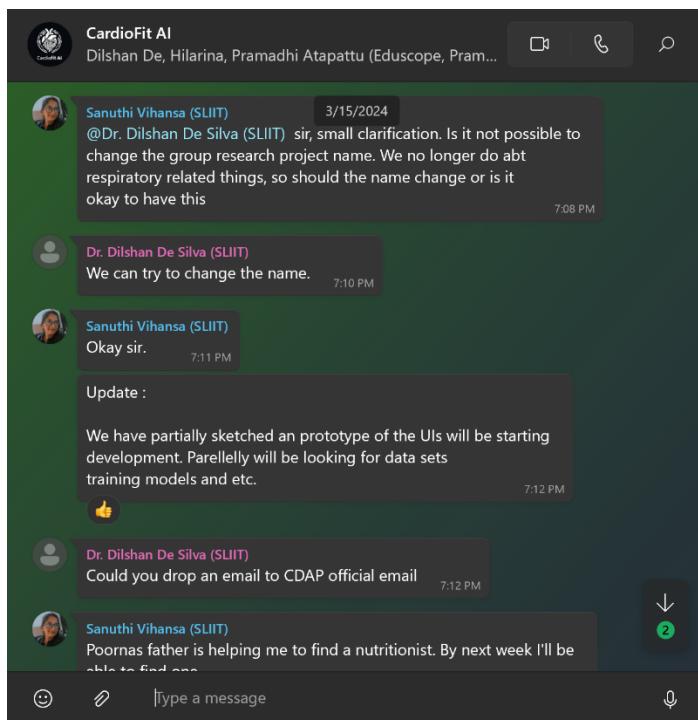


Figure 39: WhatsApp group screenshot 14

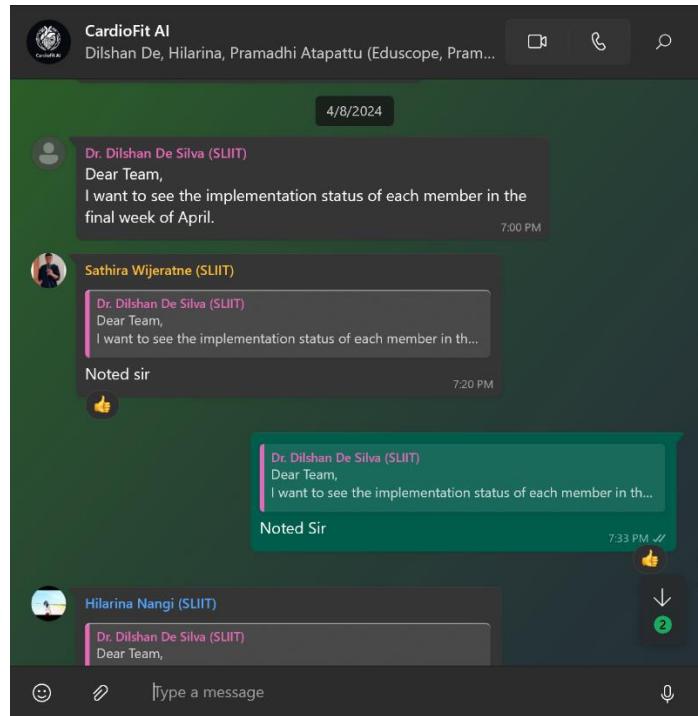


Figure 40: WhatsApp group screenshot 15

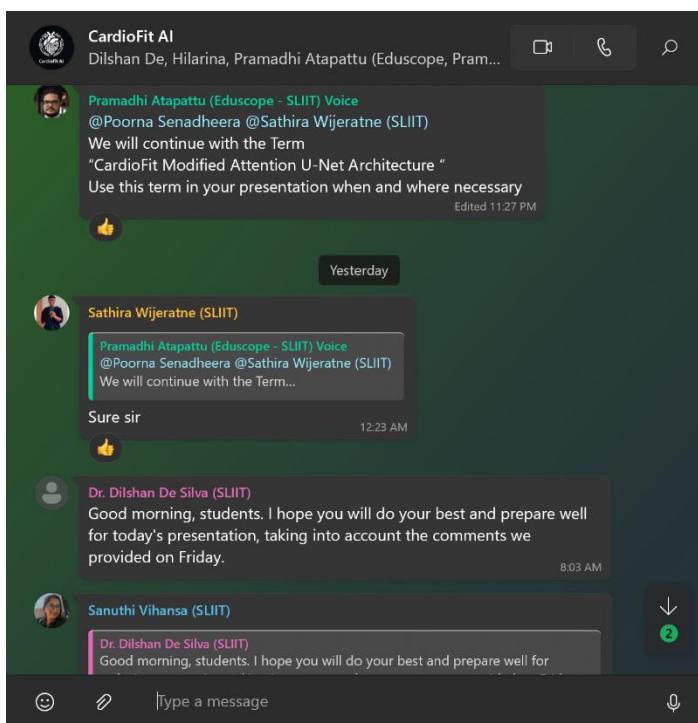


Figure 41: WhatsApp group screenshot 16

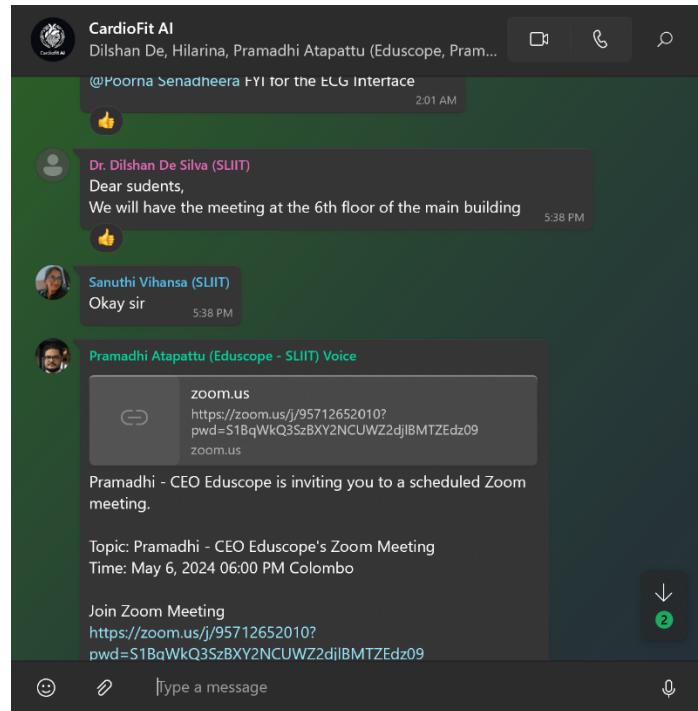


Figure 42: WhatsApp group screenshot 17

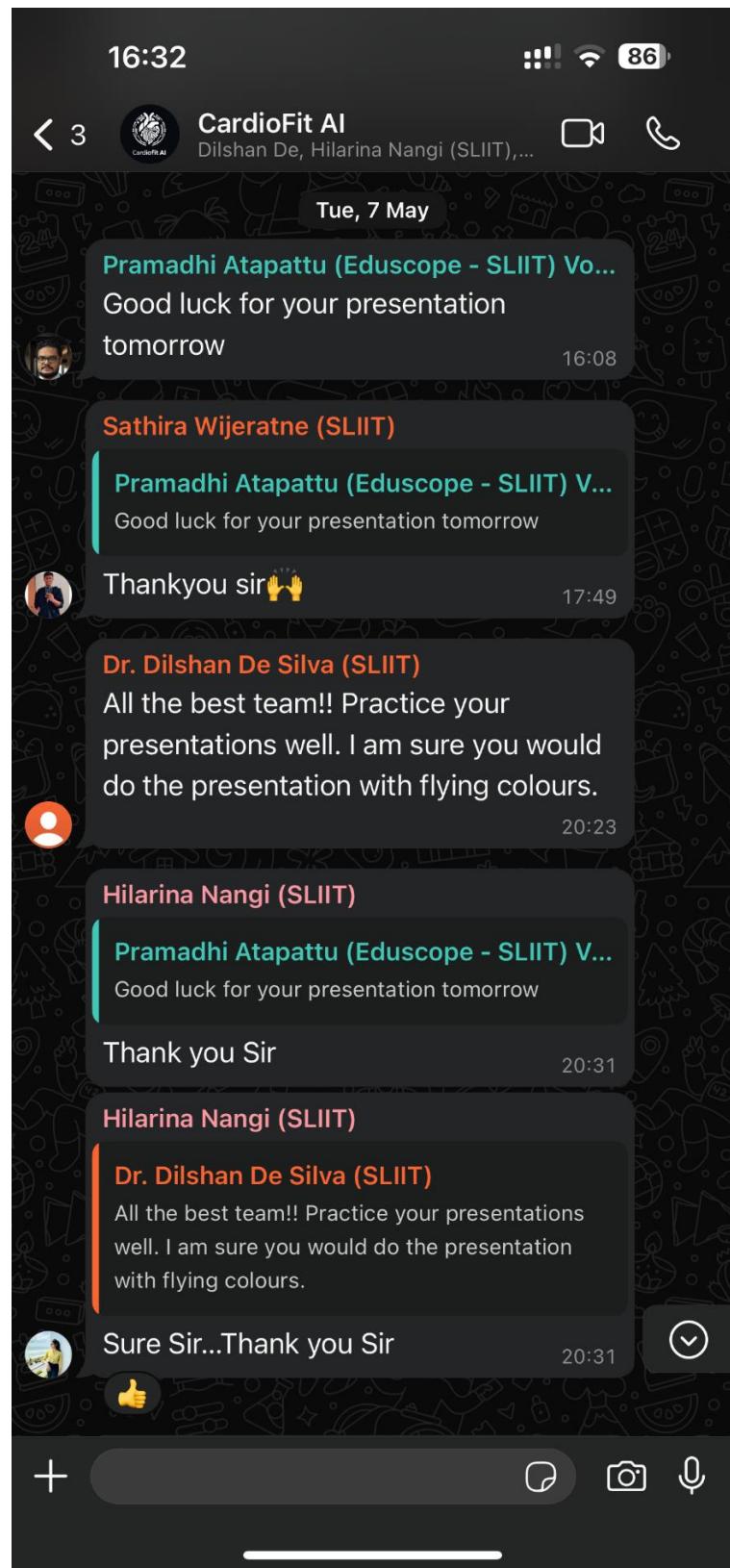


Figure 43: WhatsApp group screenshot 18

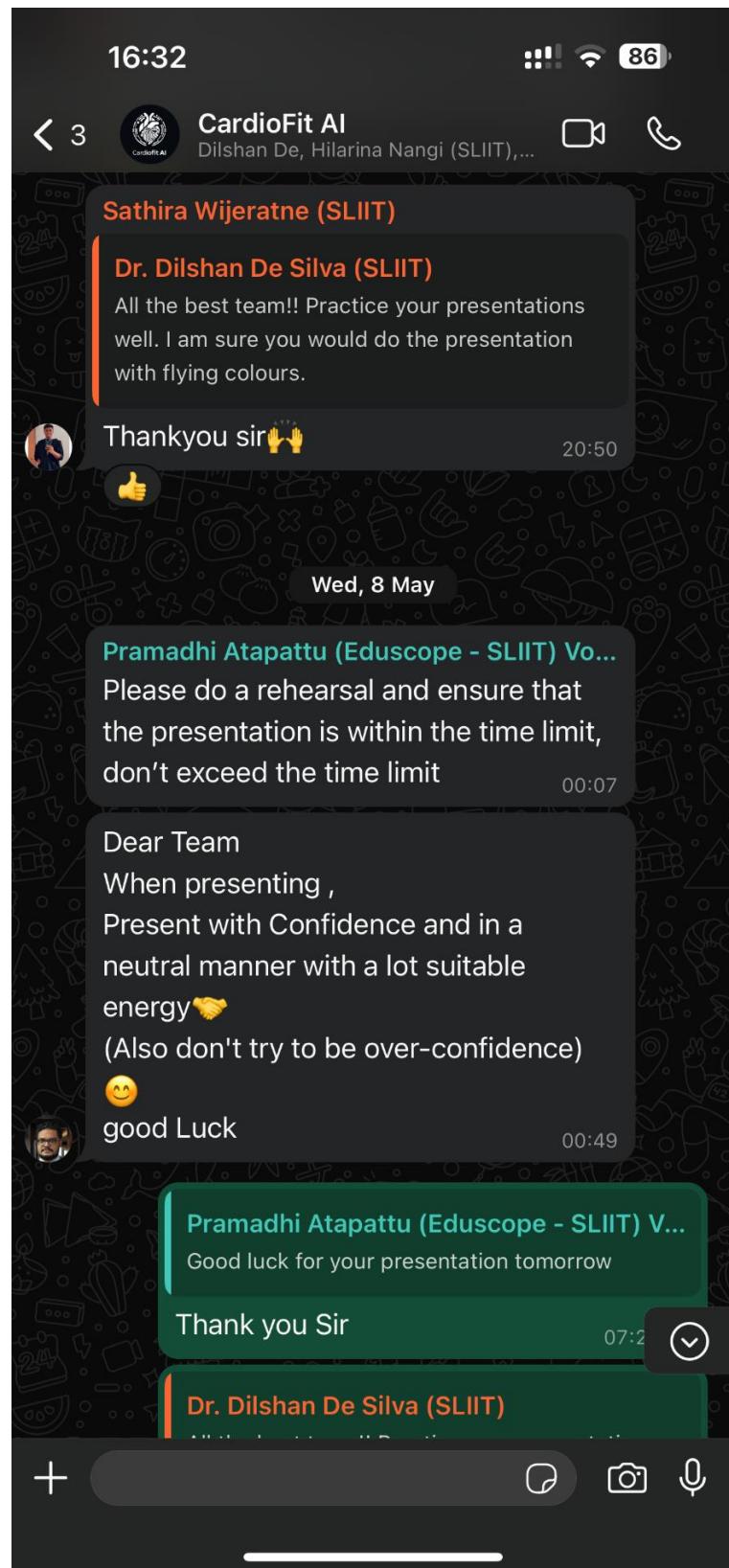


Figure 44: WhatsApp group screenshot 19

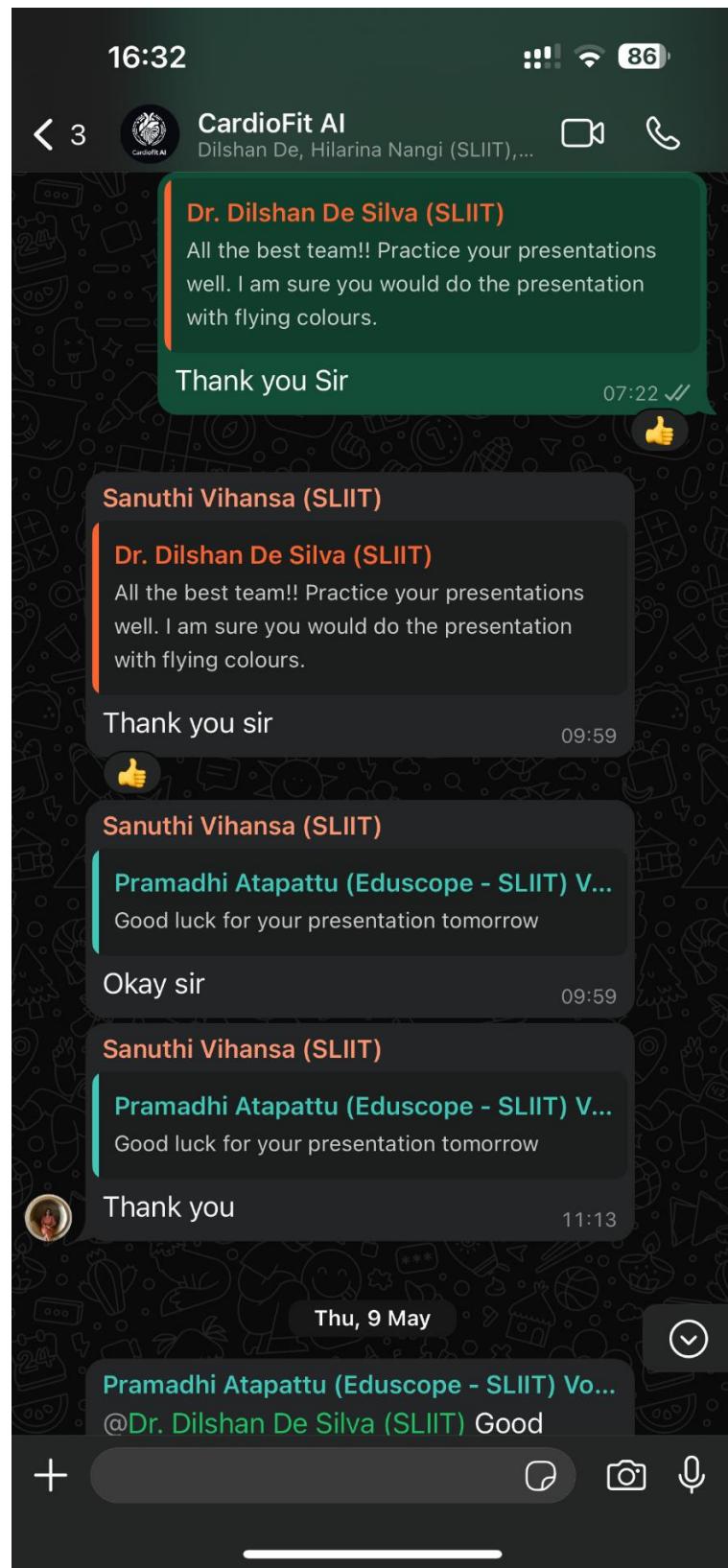


Figure 45: WhatsApp group screenshot 20

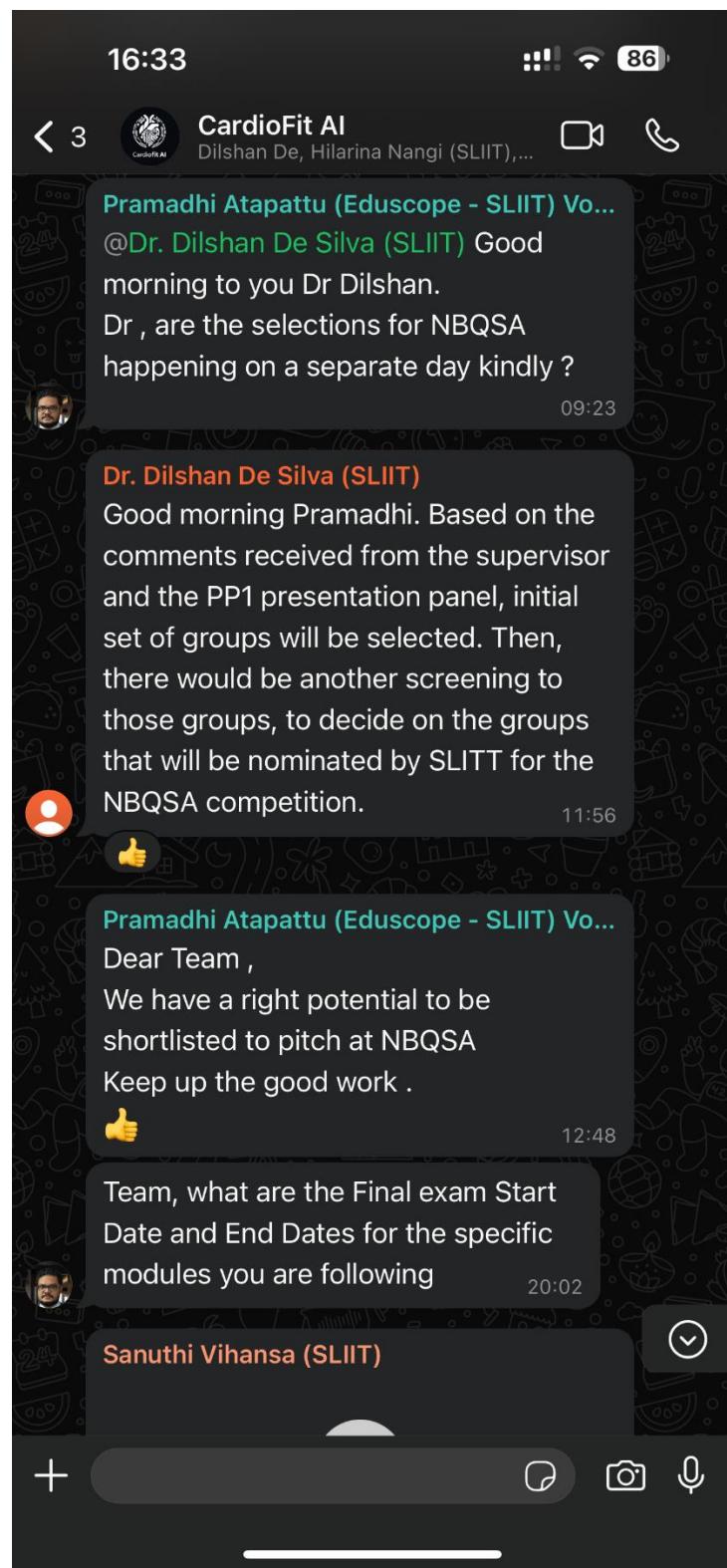


Figure 46: WhatsApp group screenshot 21

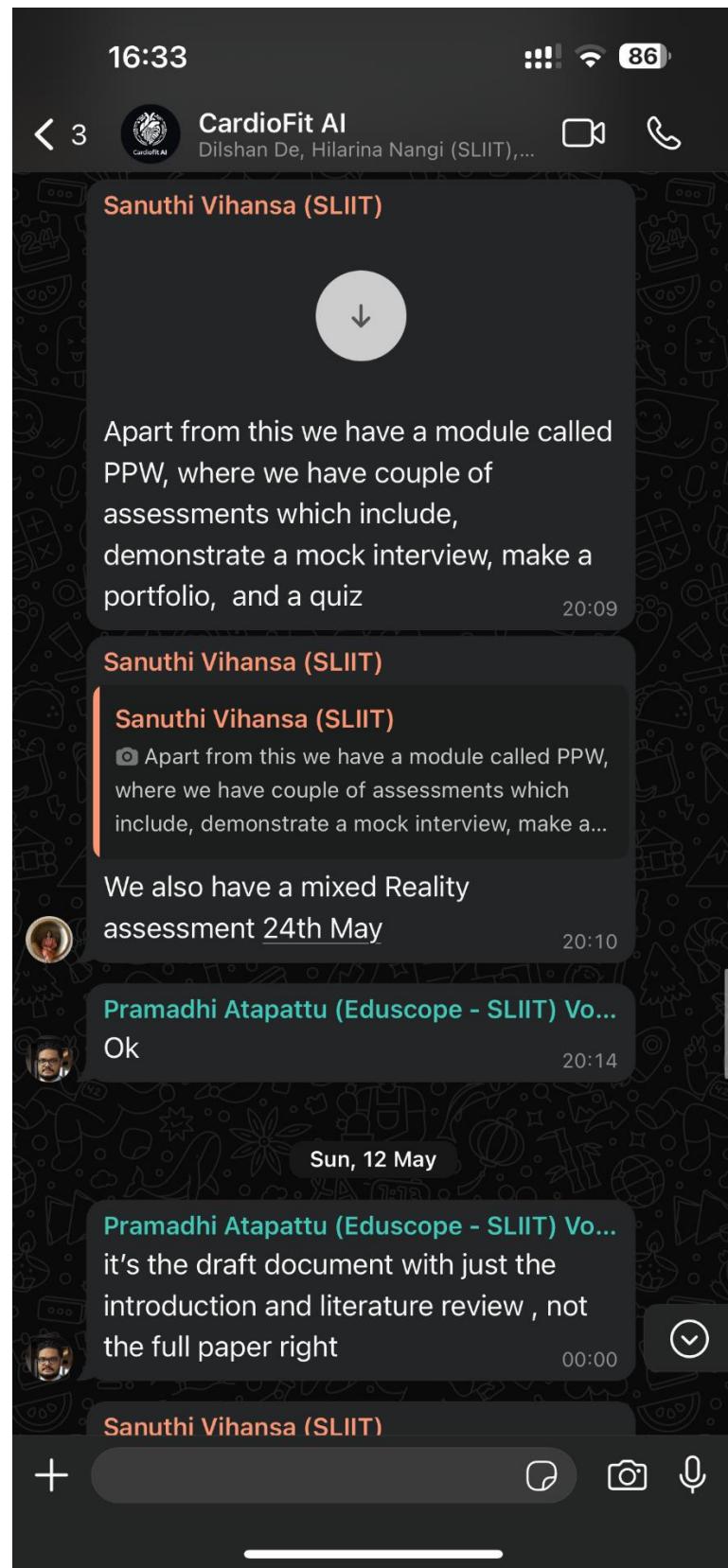


Figure 47: WhatsApp group screenshot 22

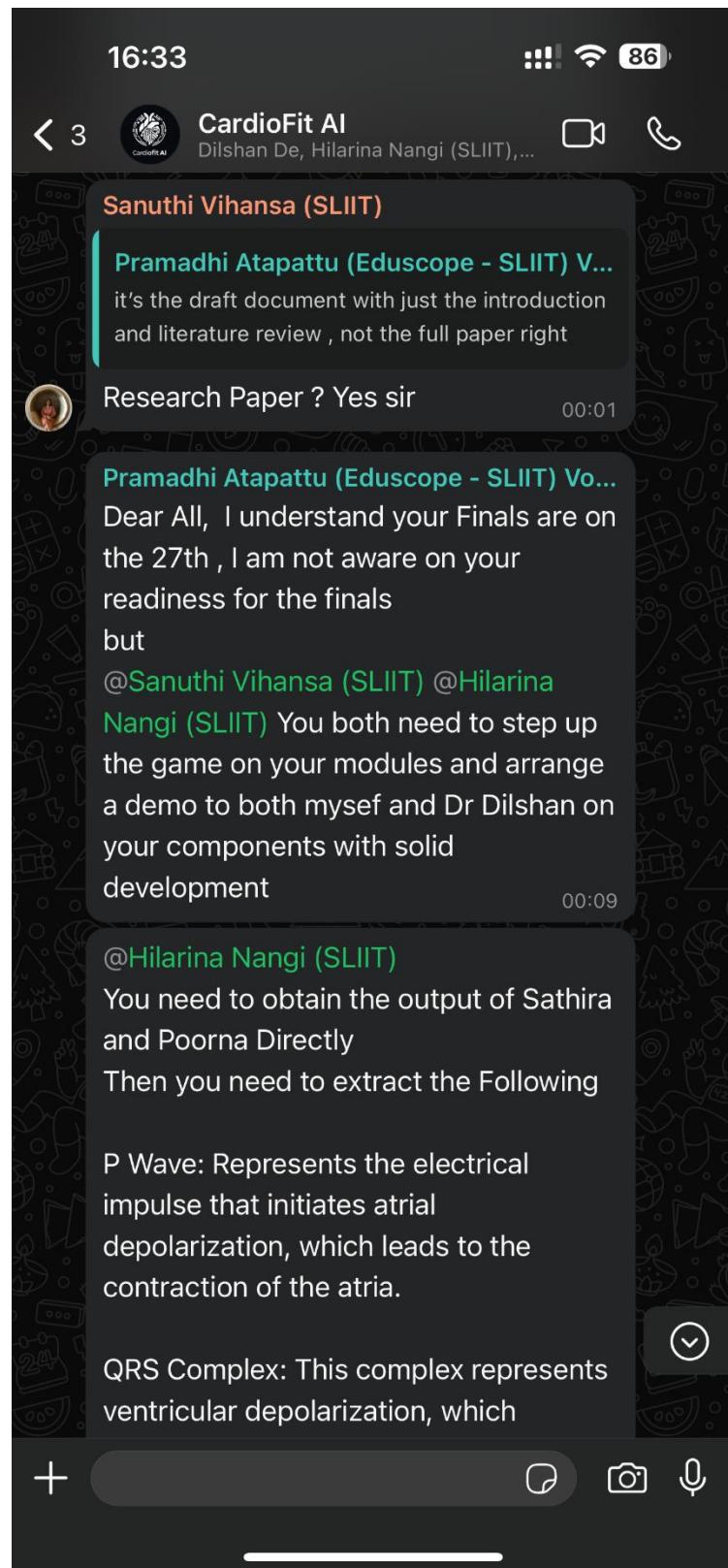


Figure 48: WhatsApp group screenshot 23

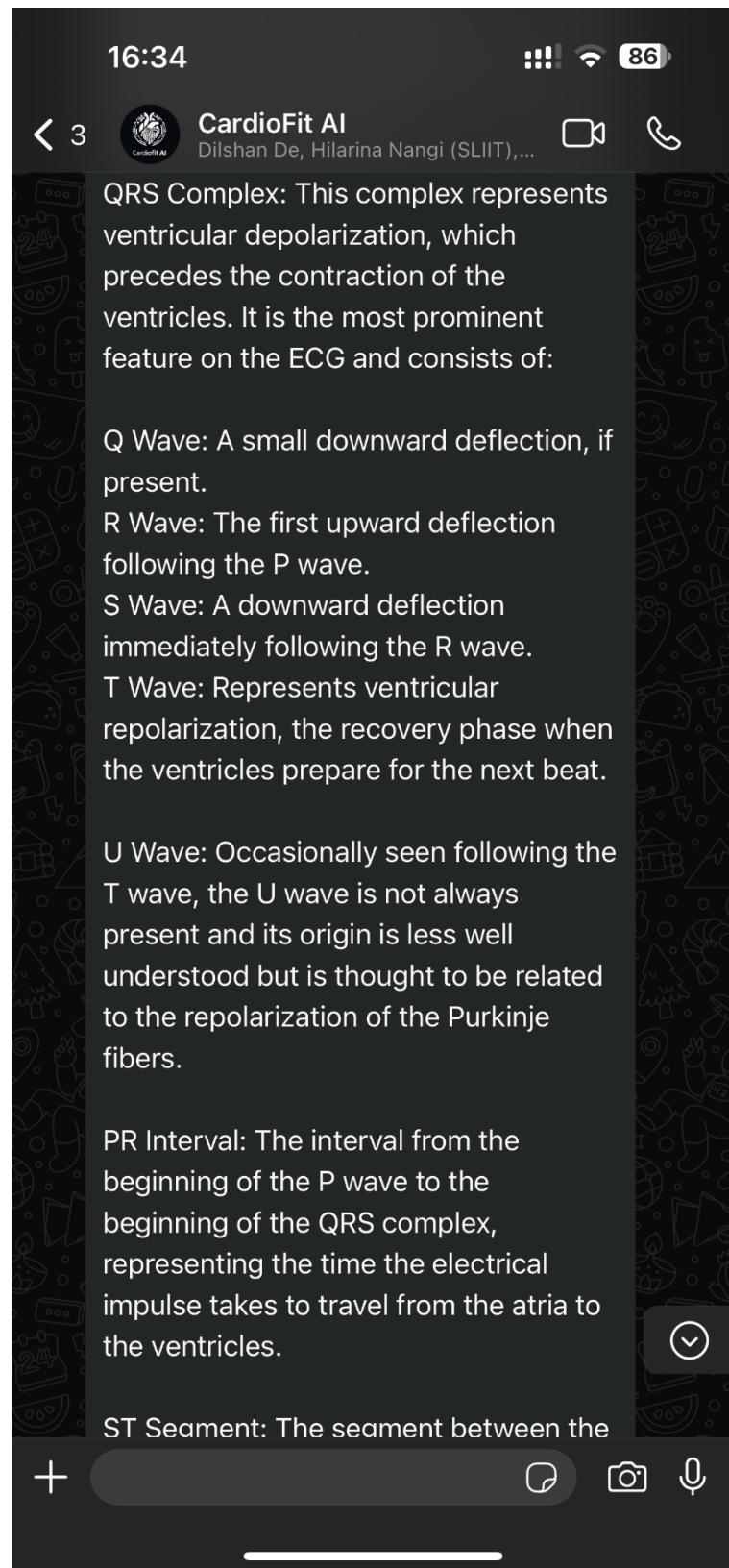


Figure 49: WhatsApp group screenshot 24

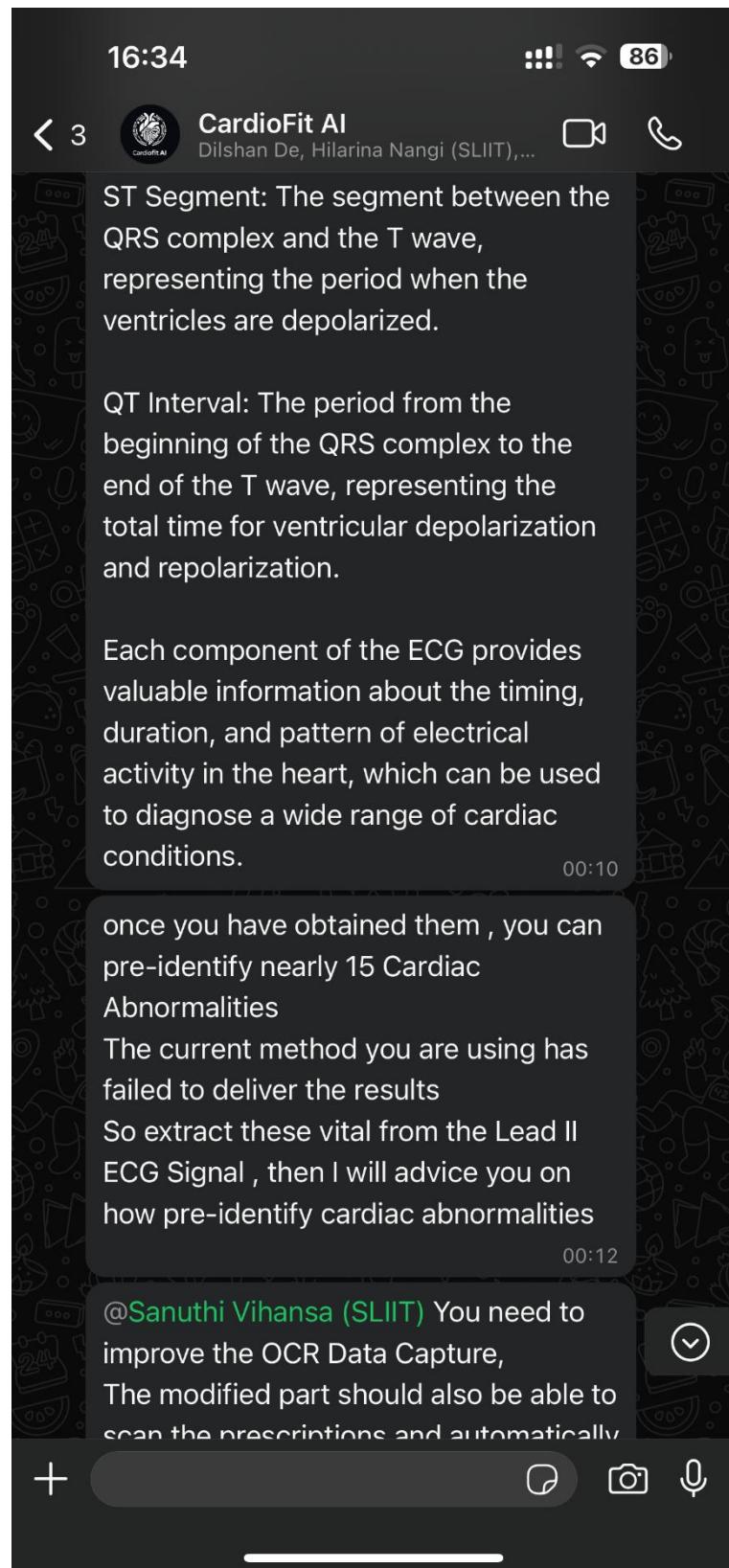


Figure 50: WhatsApp group screenshot 25

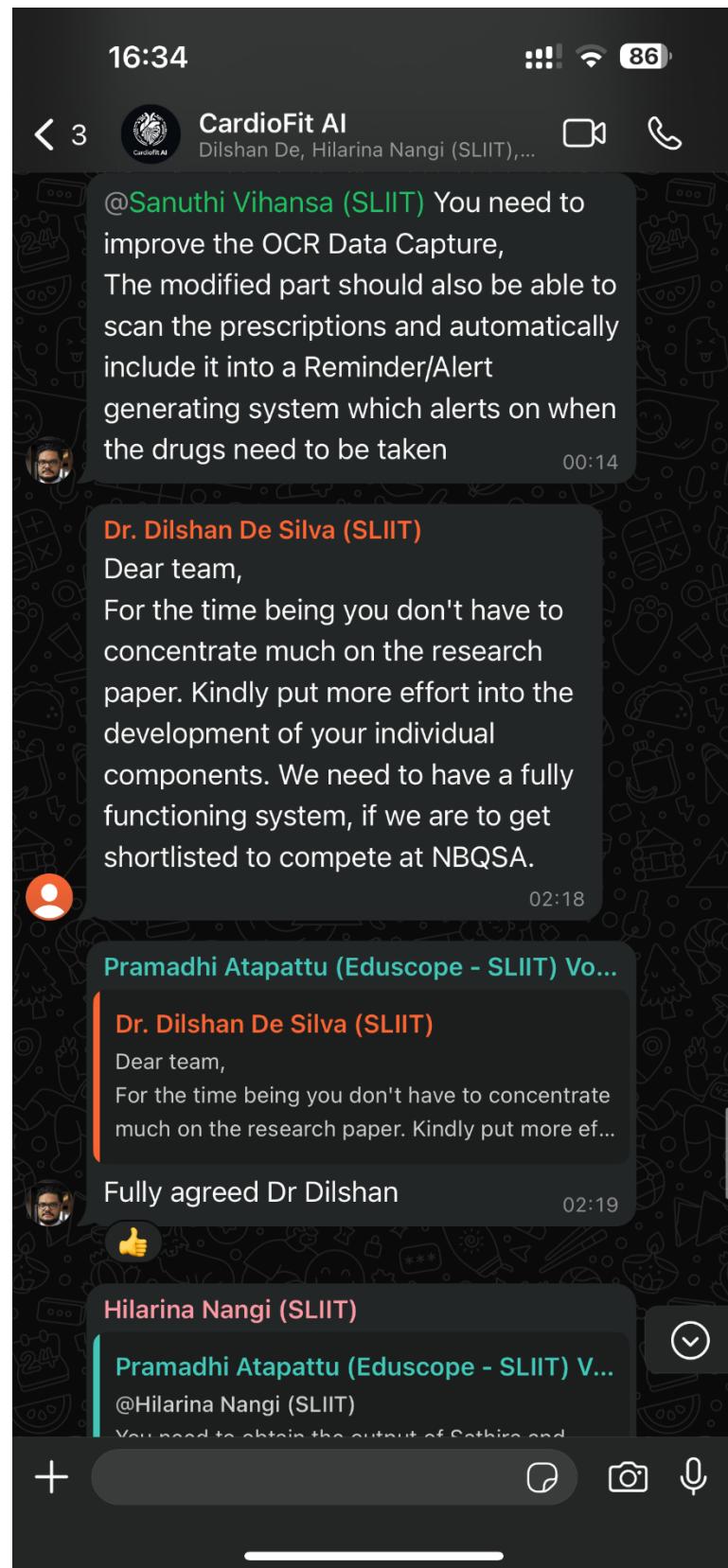


Figure 51: WhatsApp group screenshot 26

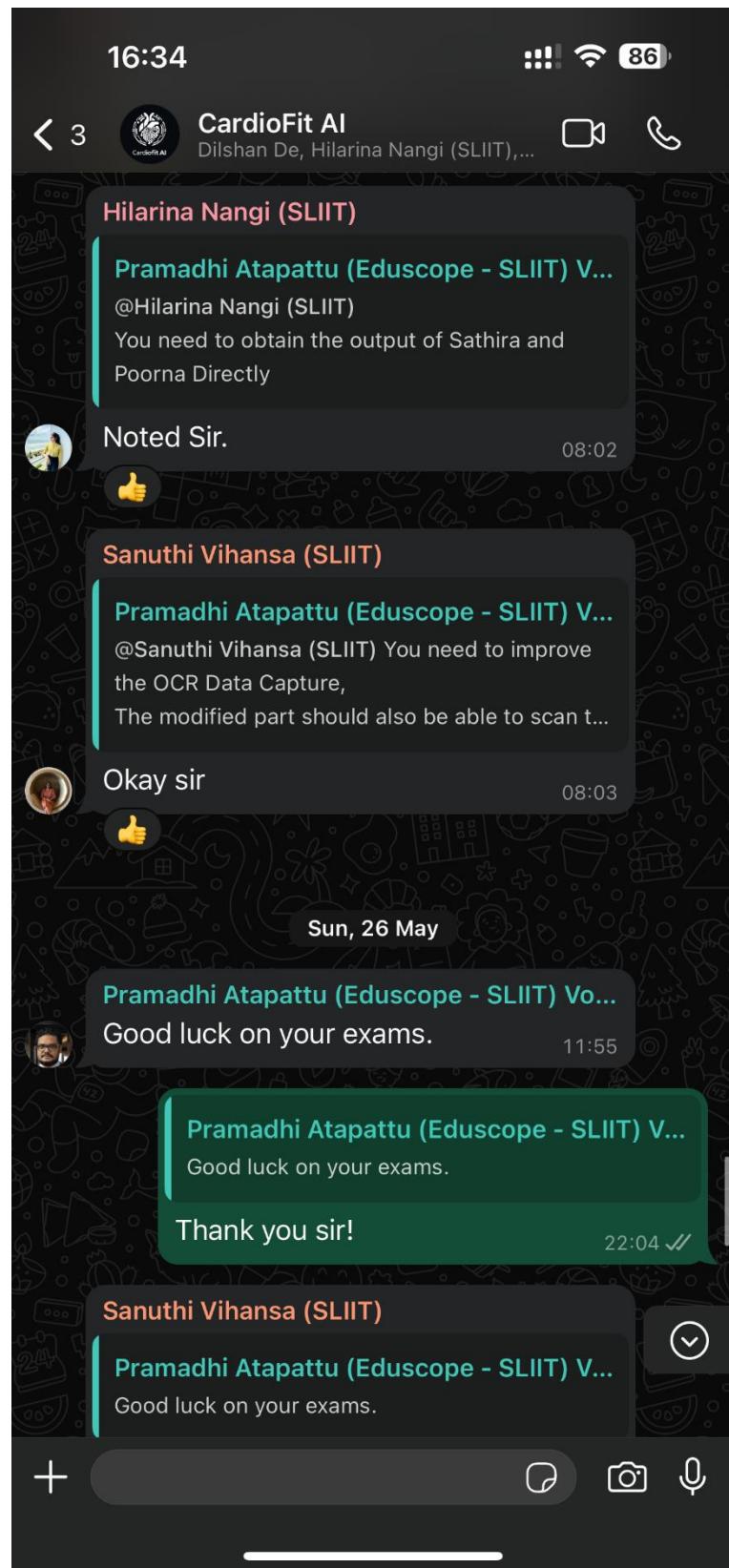


Figure 52: WhatsApp group screenshot 27

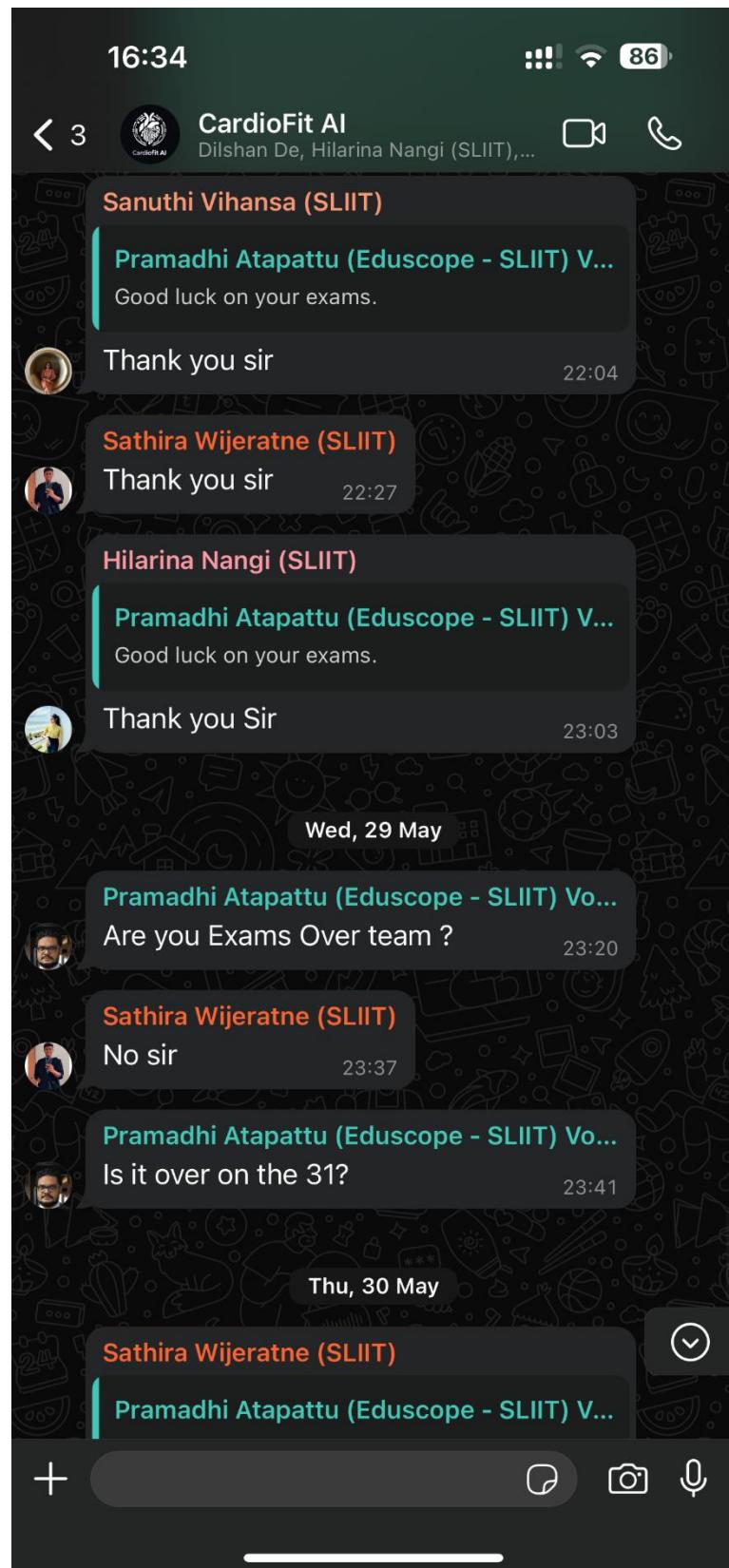


Figure 53: WhatsApp group screenshot 28

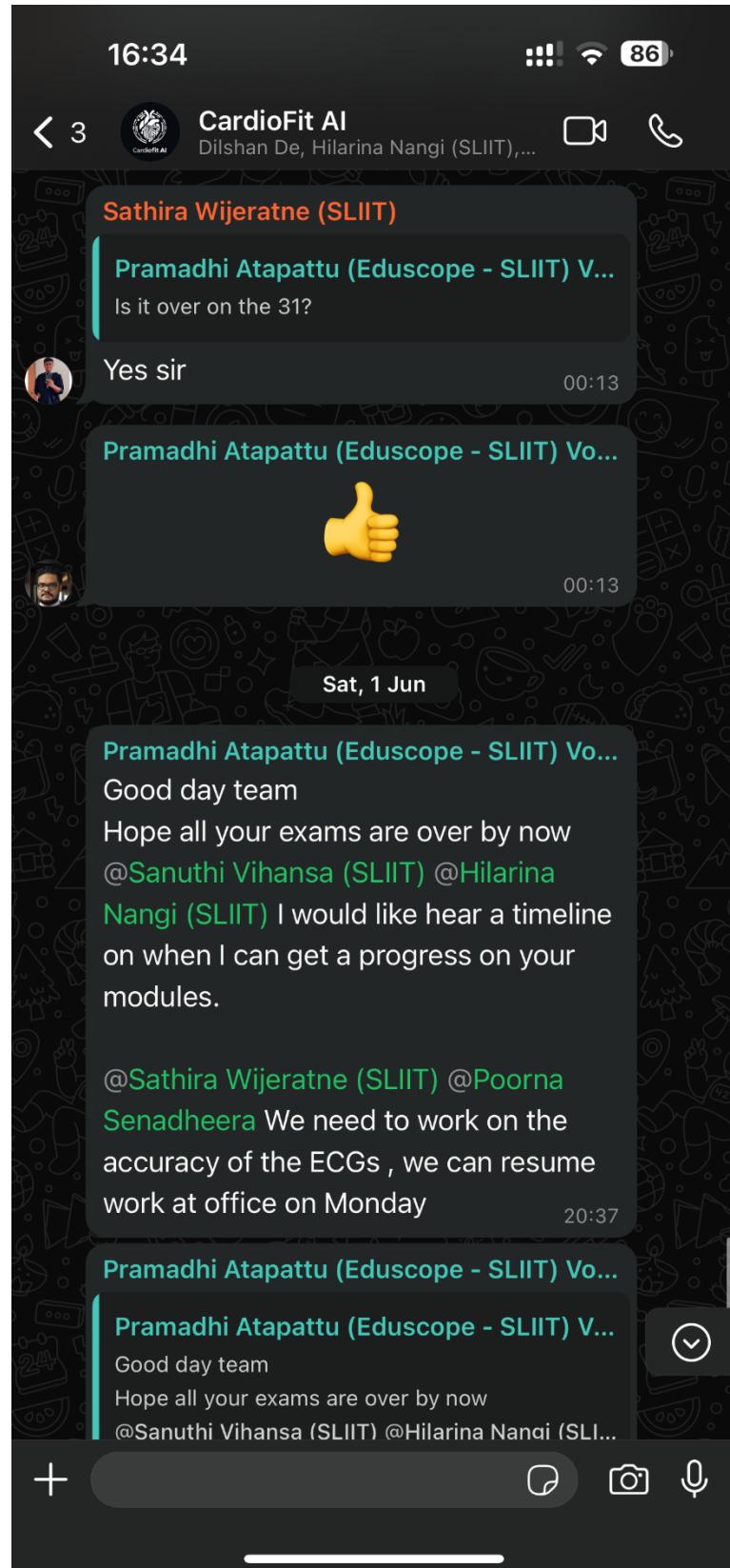


Figure 54: WhatsApp group screenshot 29

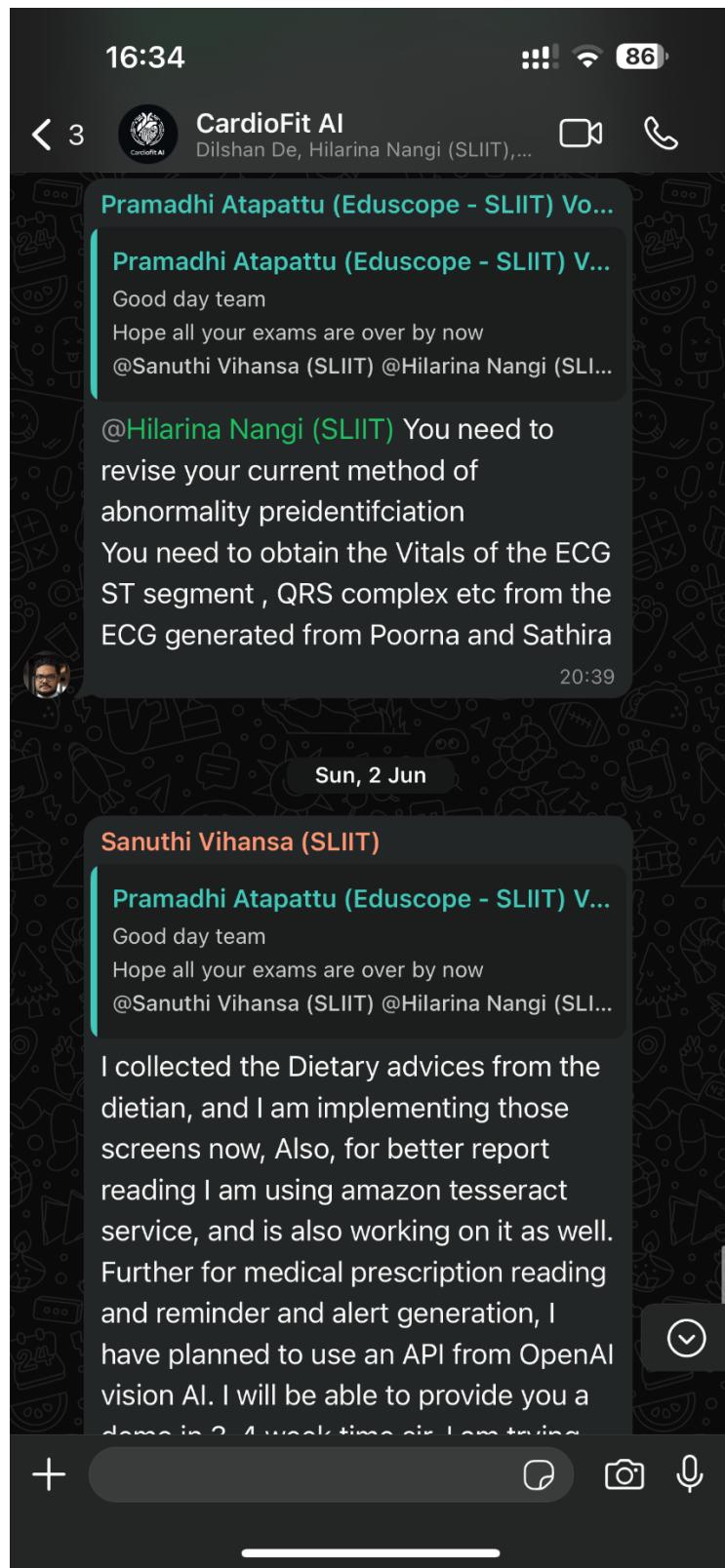


Figure 55: WhatsApp group screenshot 30

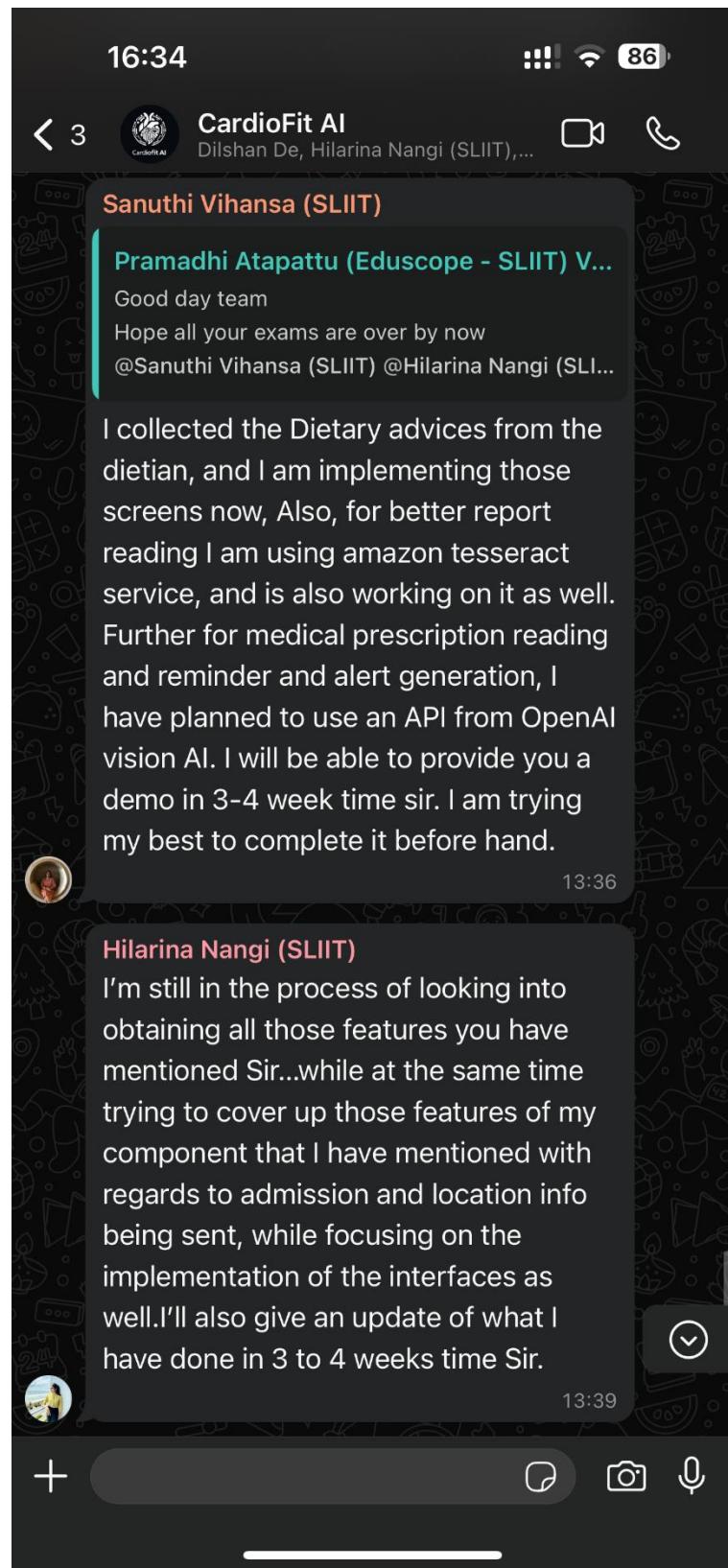


Figure 56: WhatsApp group screenshot 31

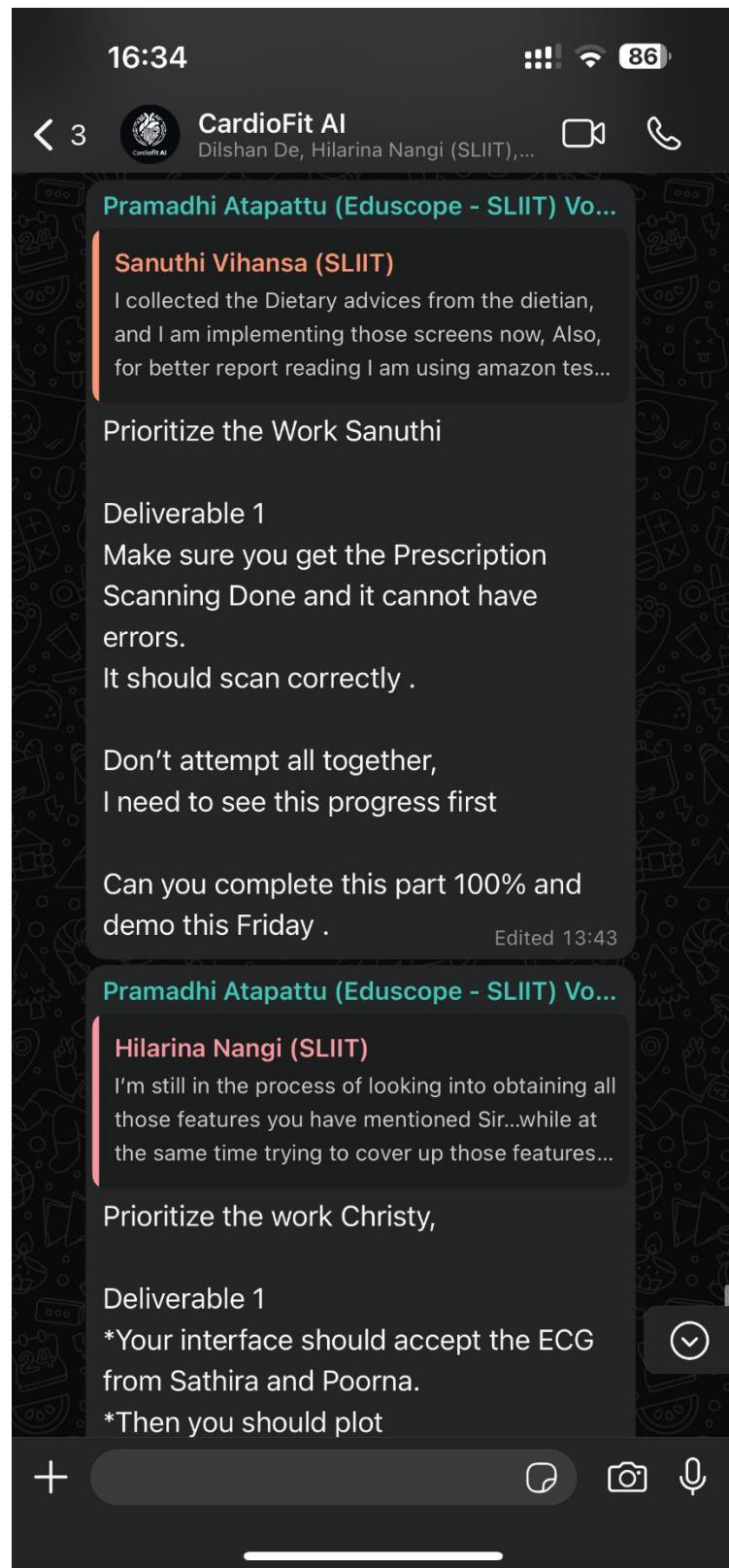


Figure 57: WhatsApp group screenshot 32

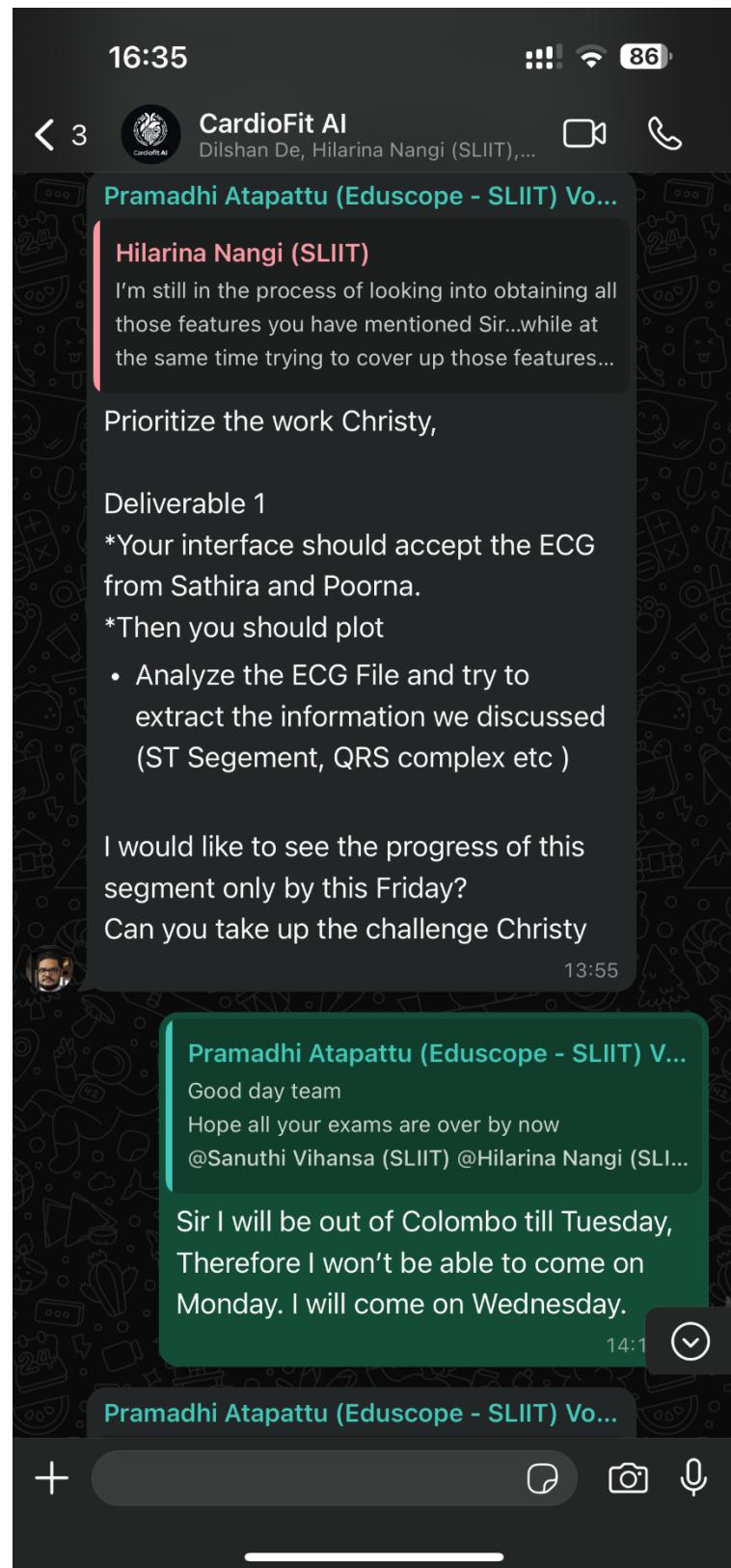


Figure 58: WhatsApp group screenshot 33

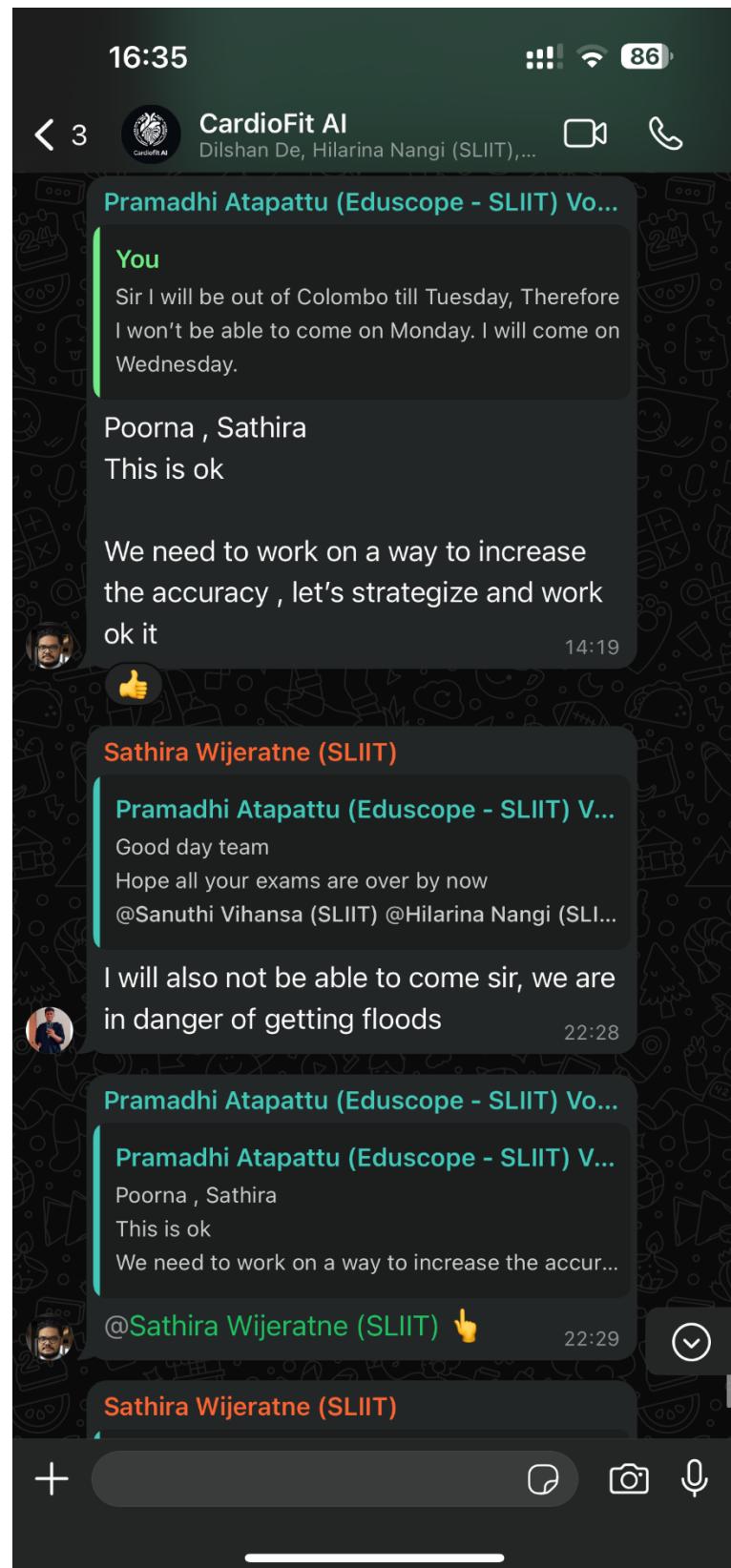


Figure 59: WhatsApp group screenshot 34

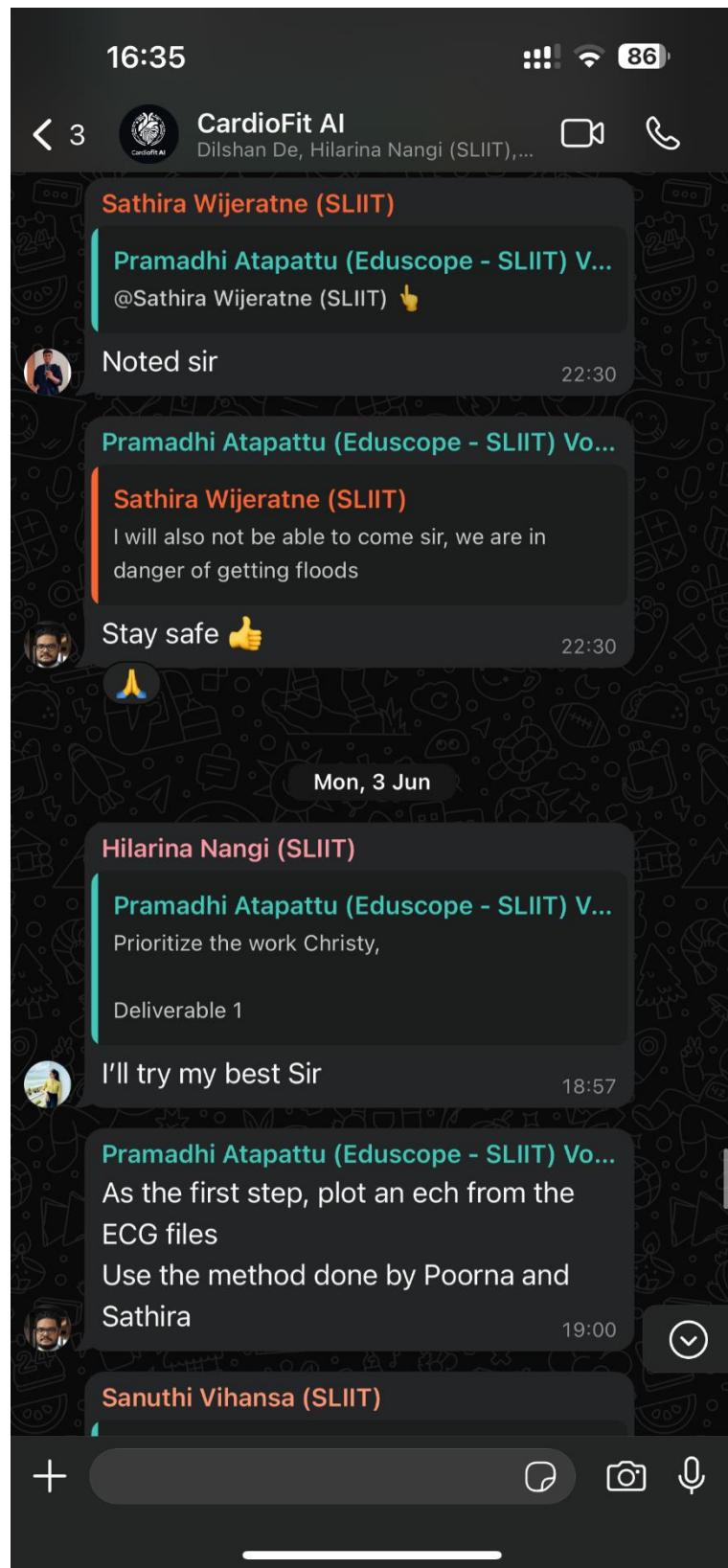


Figure 60: WhatsApp group screenshot 35

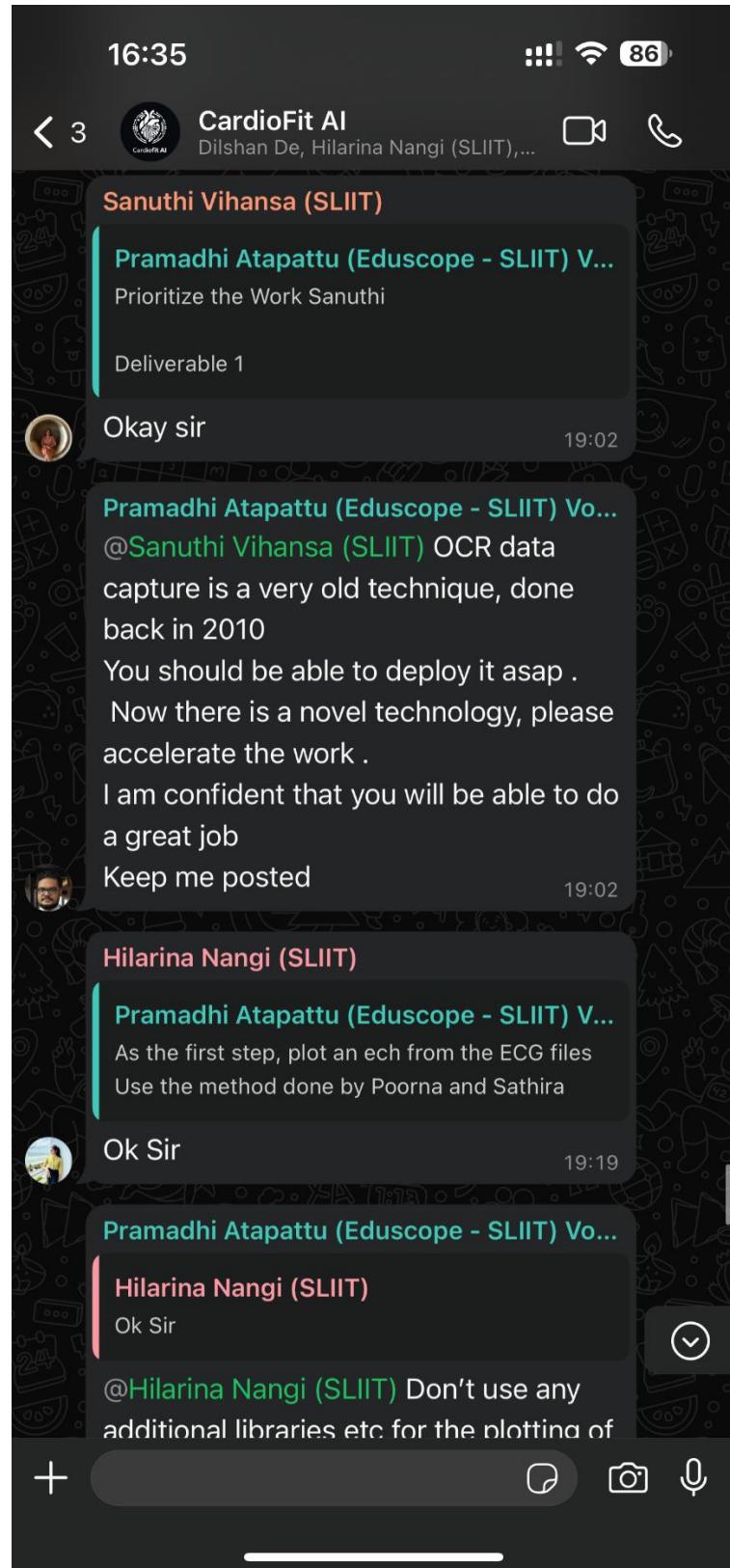


Figure 61: WhatsApp group screenshot 36

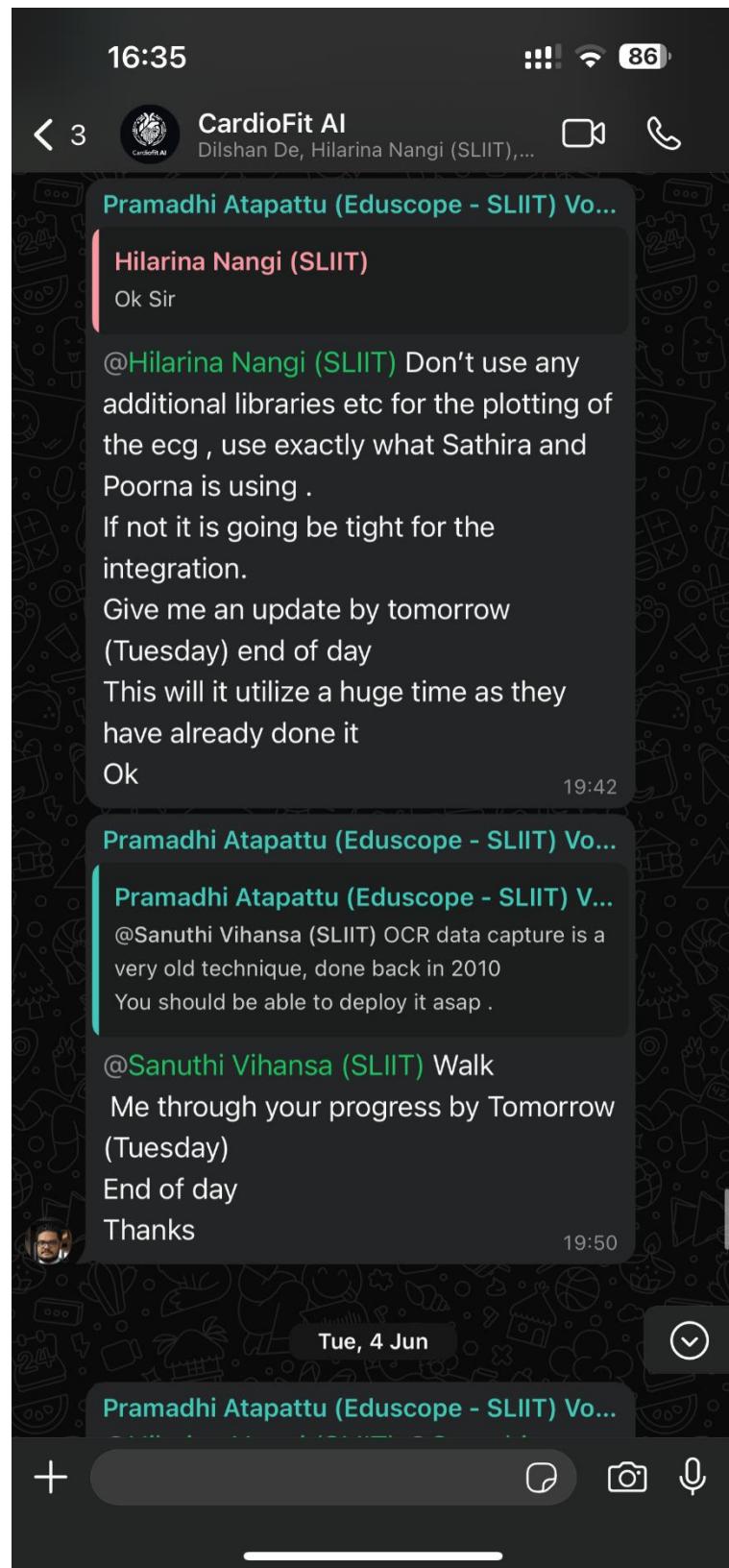


Figure 62: WhatsApp group screenshot 37

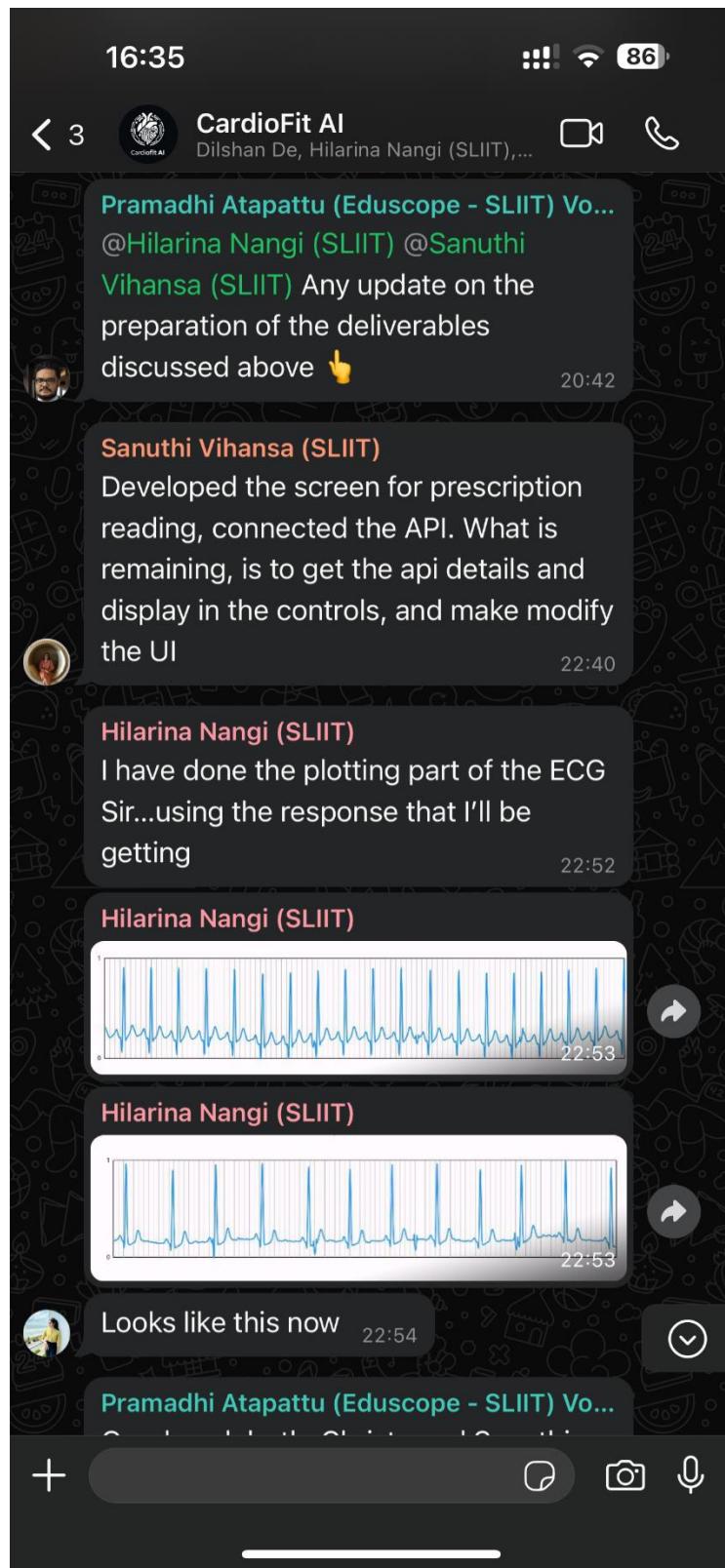


Figure 63: WhatsApp group screenshot 38

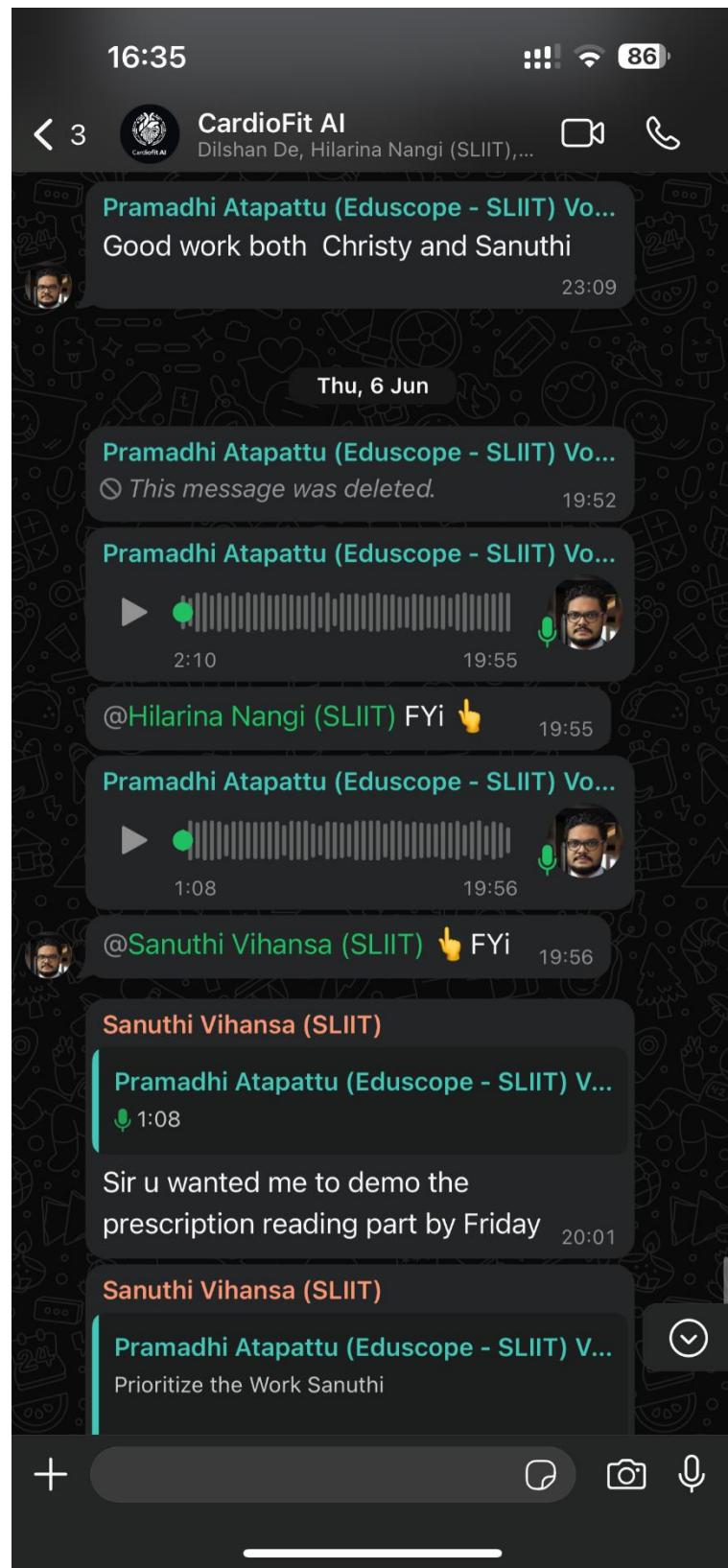


Figure 64: WhatsApp group screenshot 39

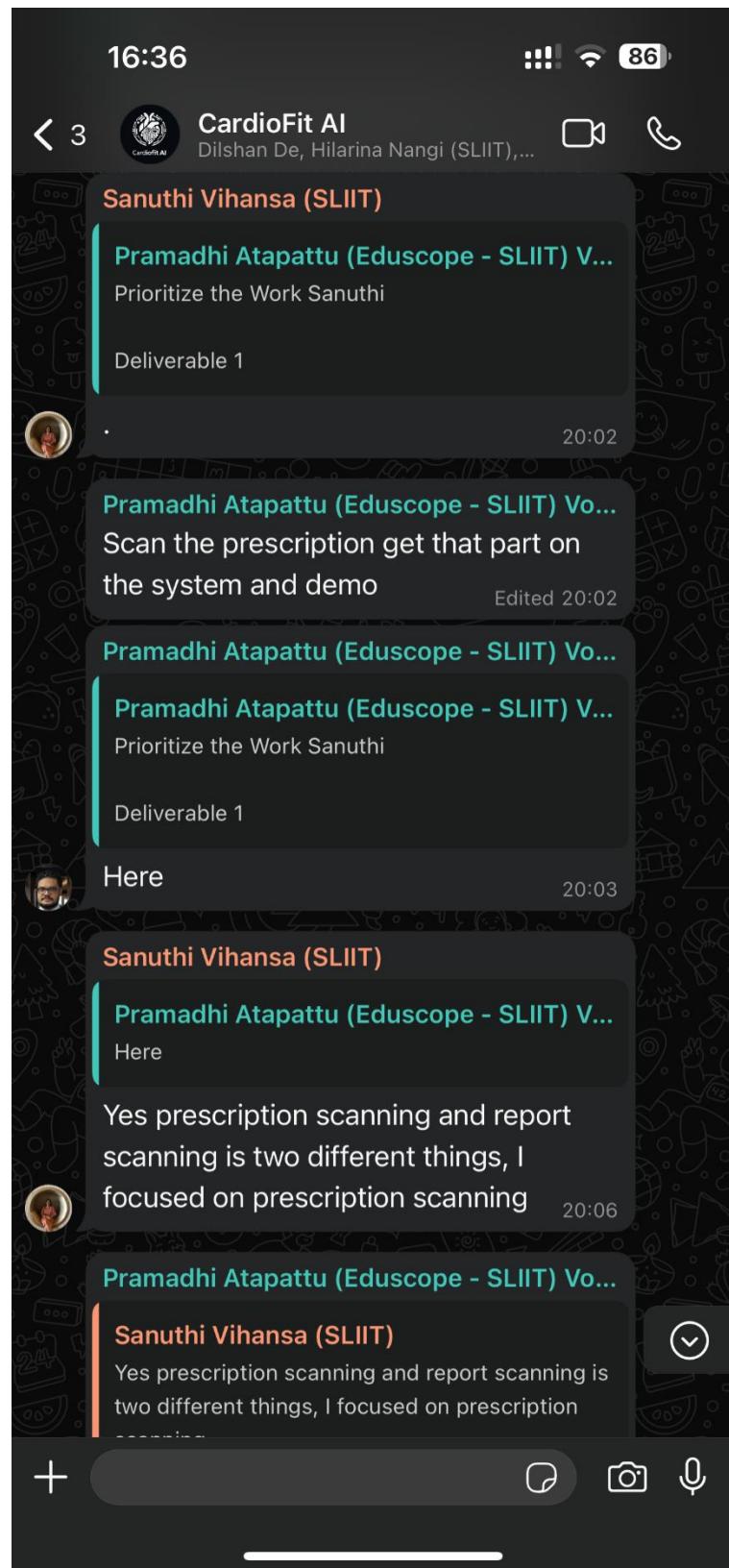


Figure 65: WhatsApp group screenshot 40

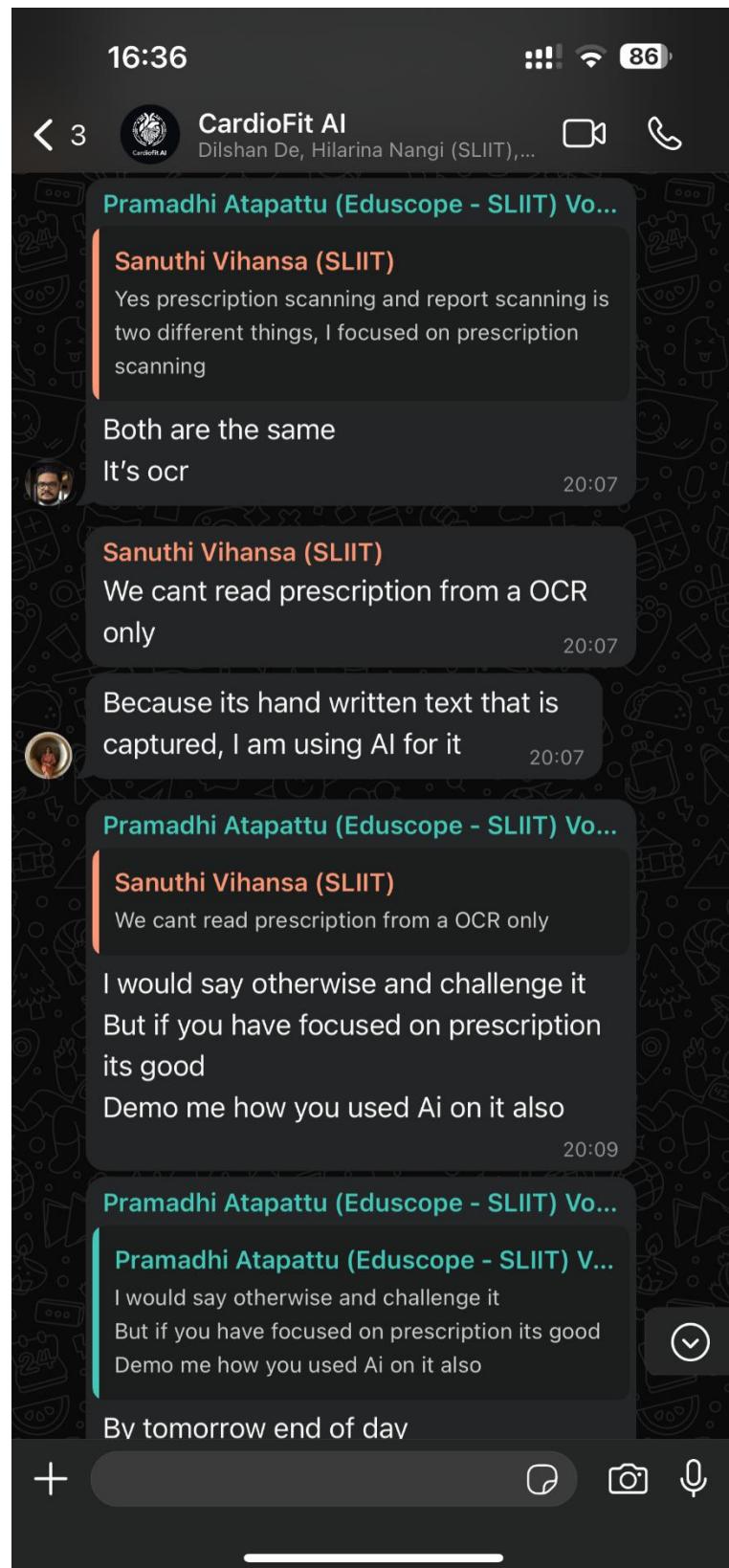


Figure 66: WhatsApp group screenshot 41

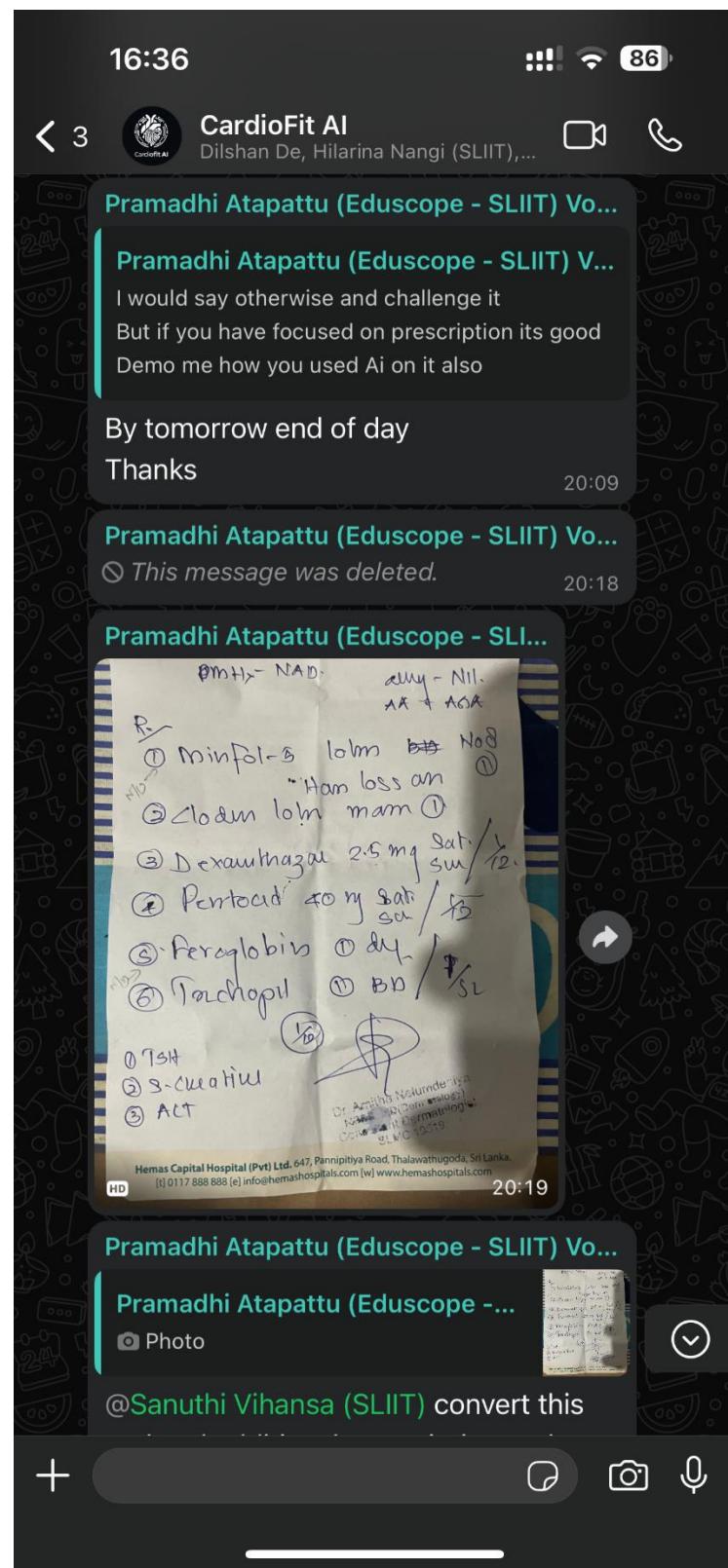


Figure 67: WhatsApp group screenshot 42

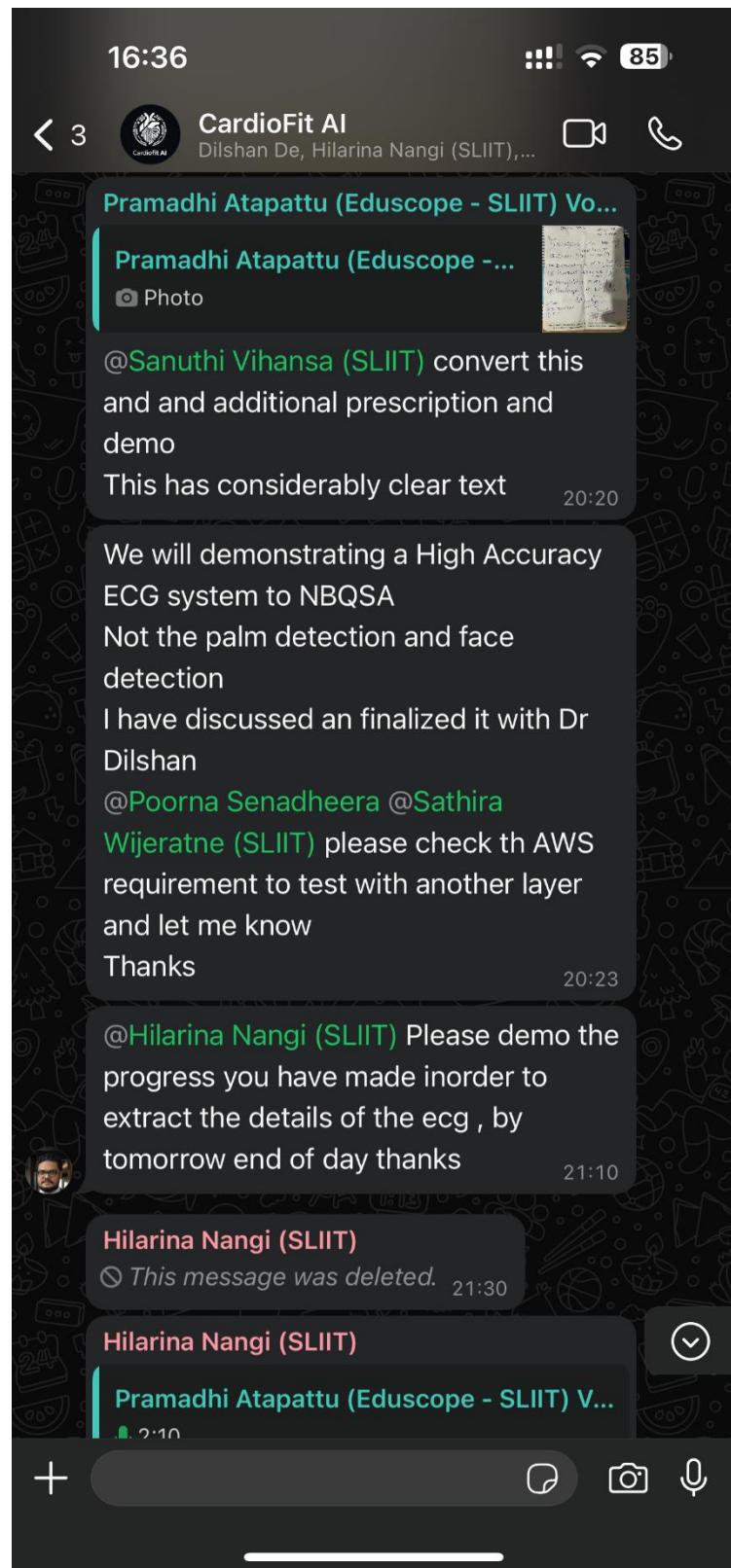


Figure 68: WhatsApp group screenshot 43

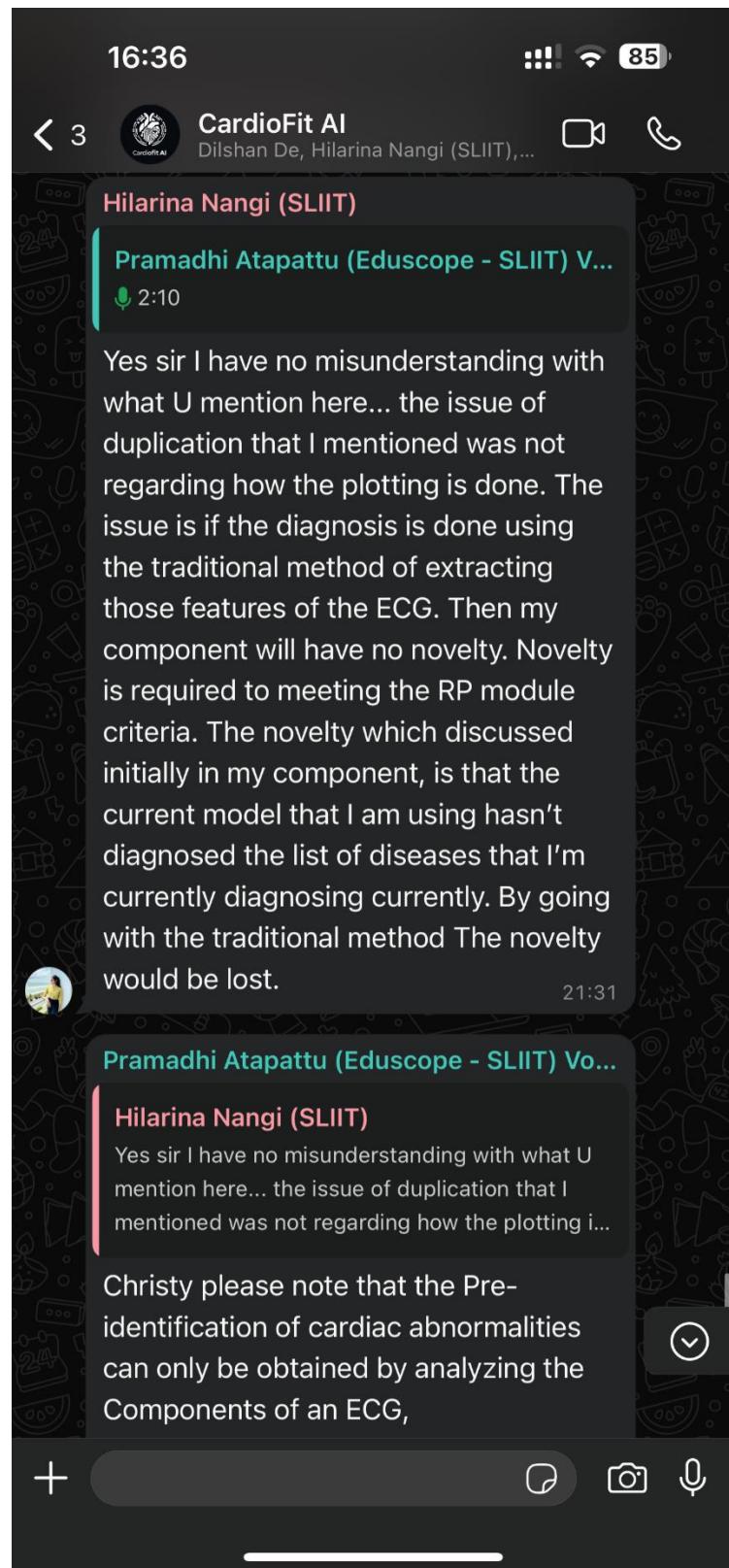


Figure 69: WhatsApp group screenshot 44

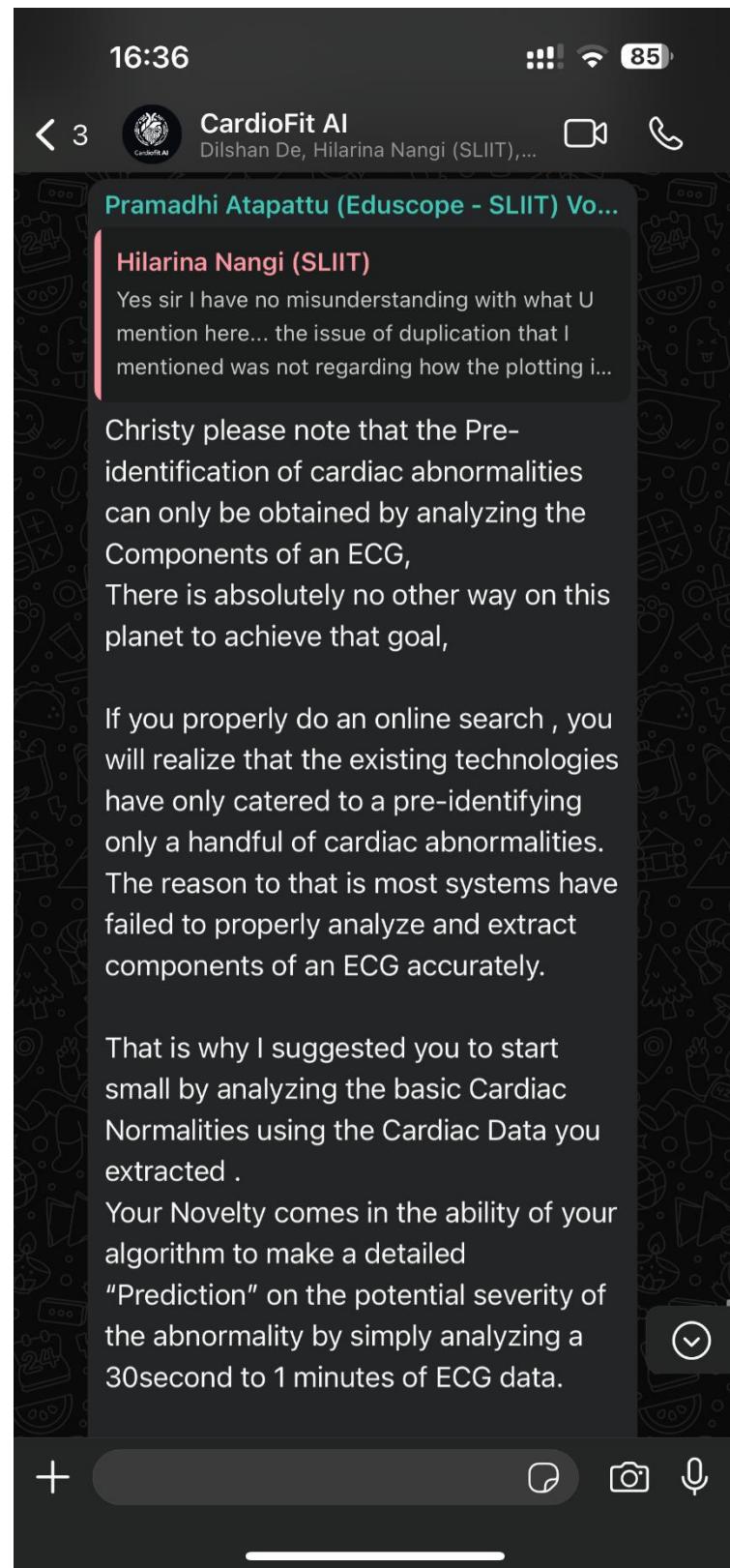


Figure 70: WhatsApp group screenshot 45

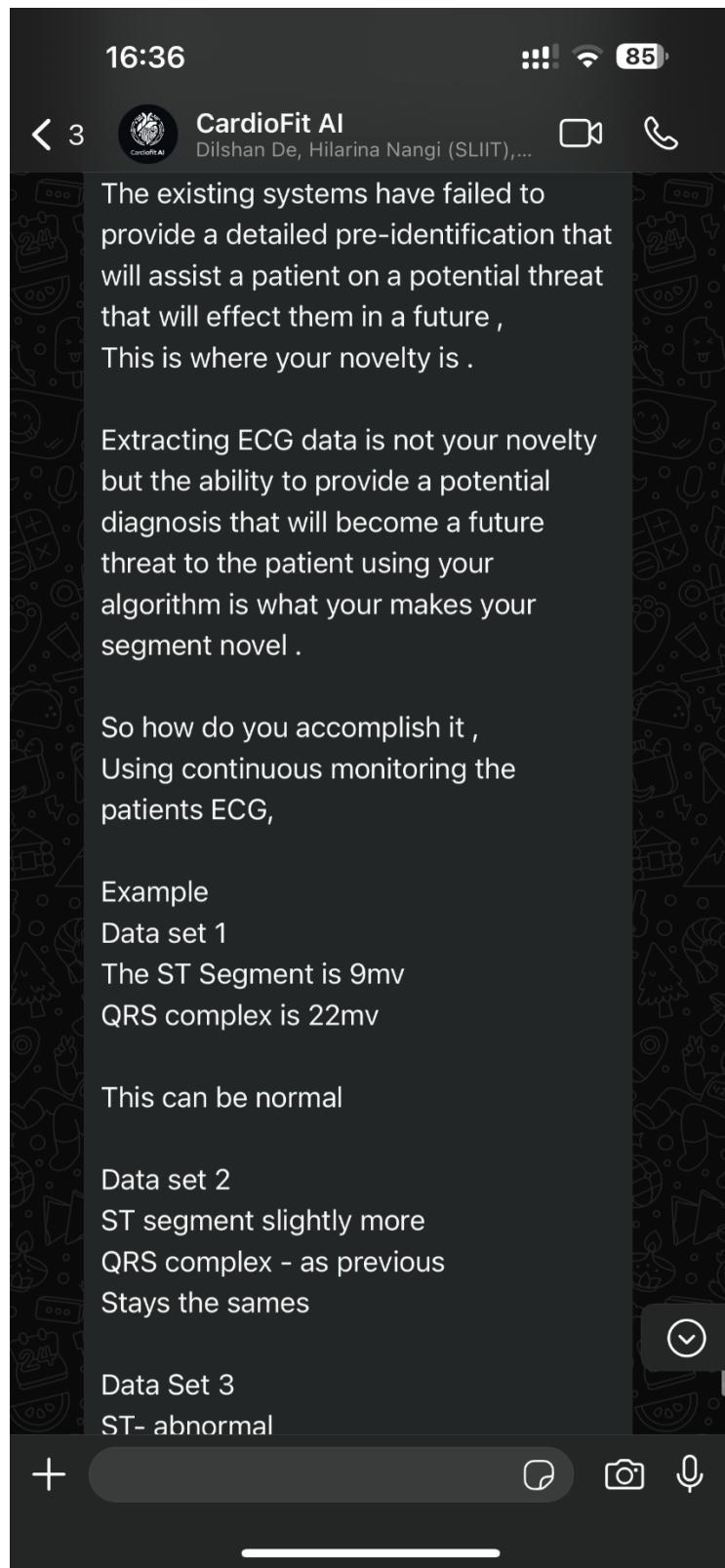


Figure 71: WhatsApp group screenshot 46

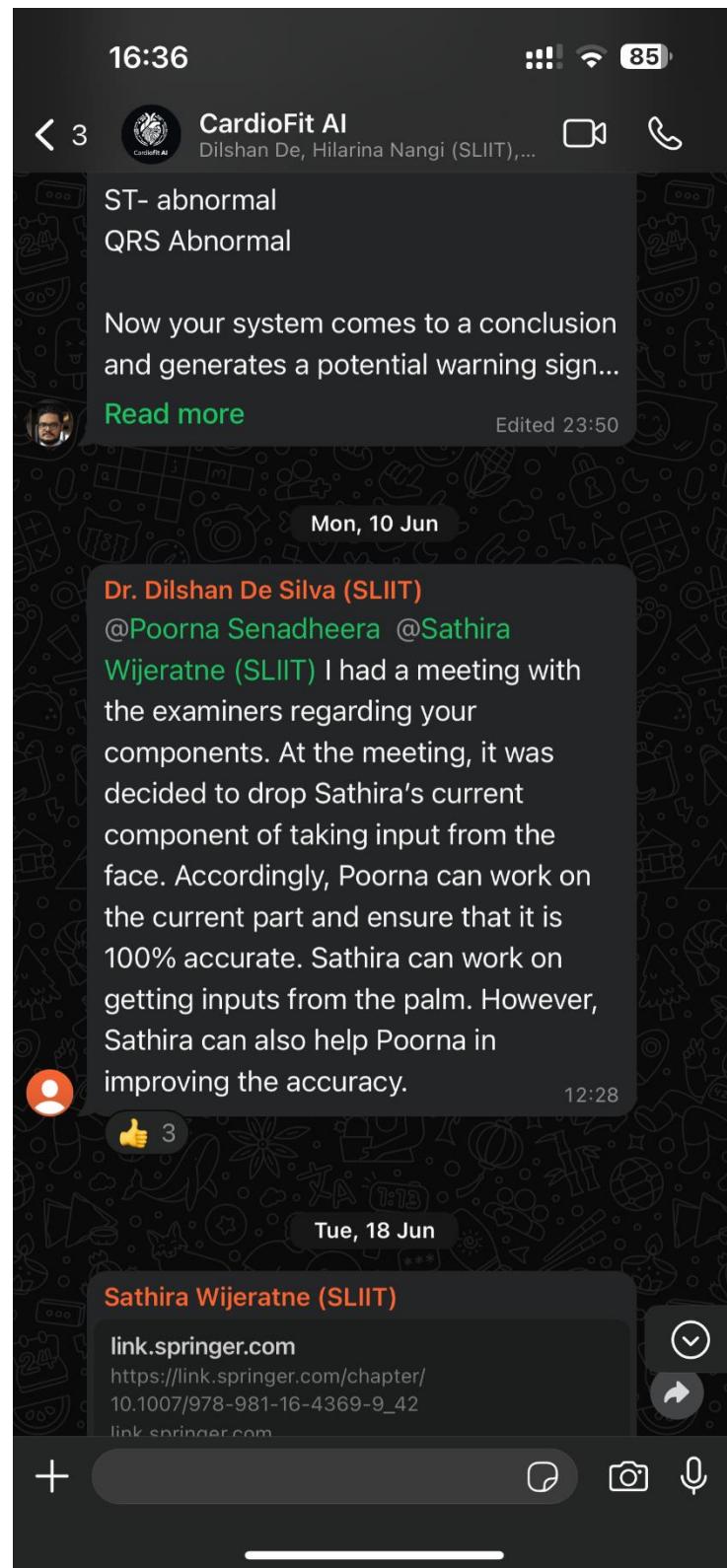


Figure 72: WhatsApp group screenshot 47

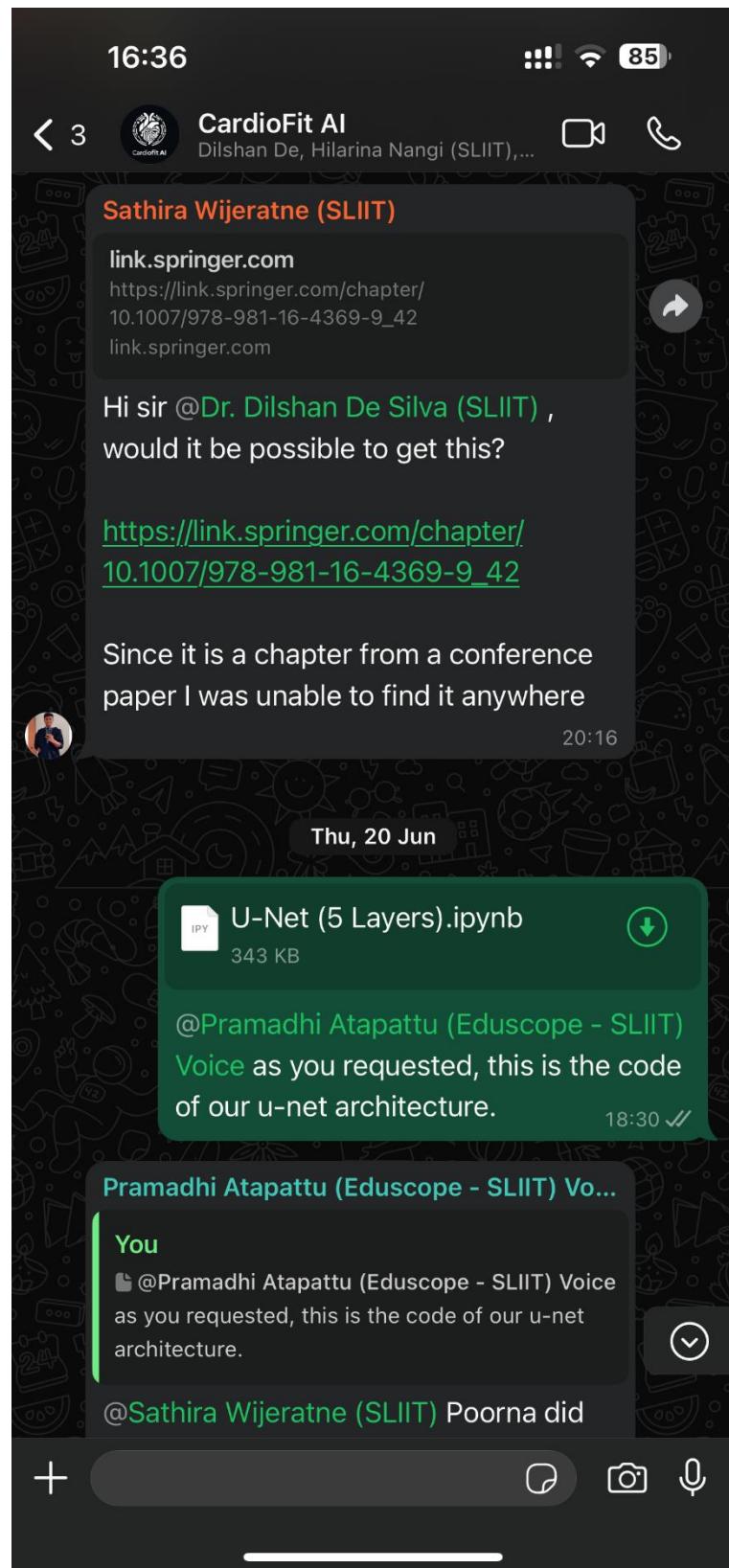


Figure 73: WhatsApp group screenshot 48

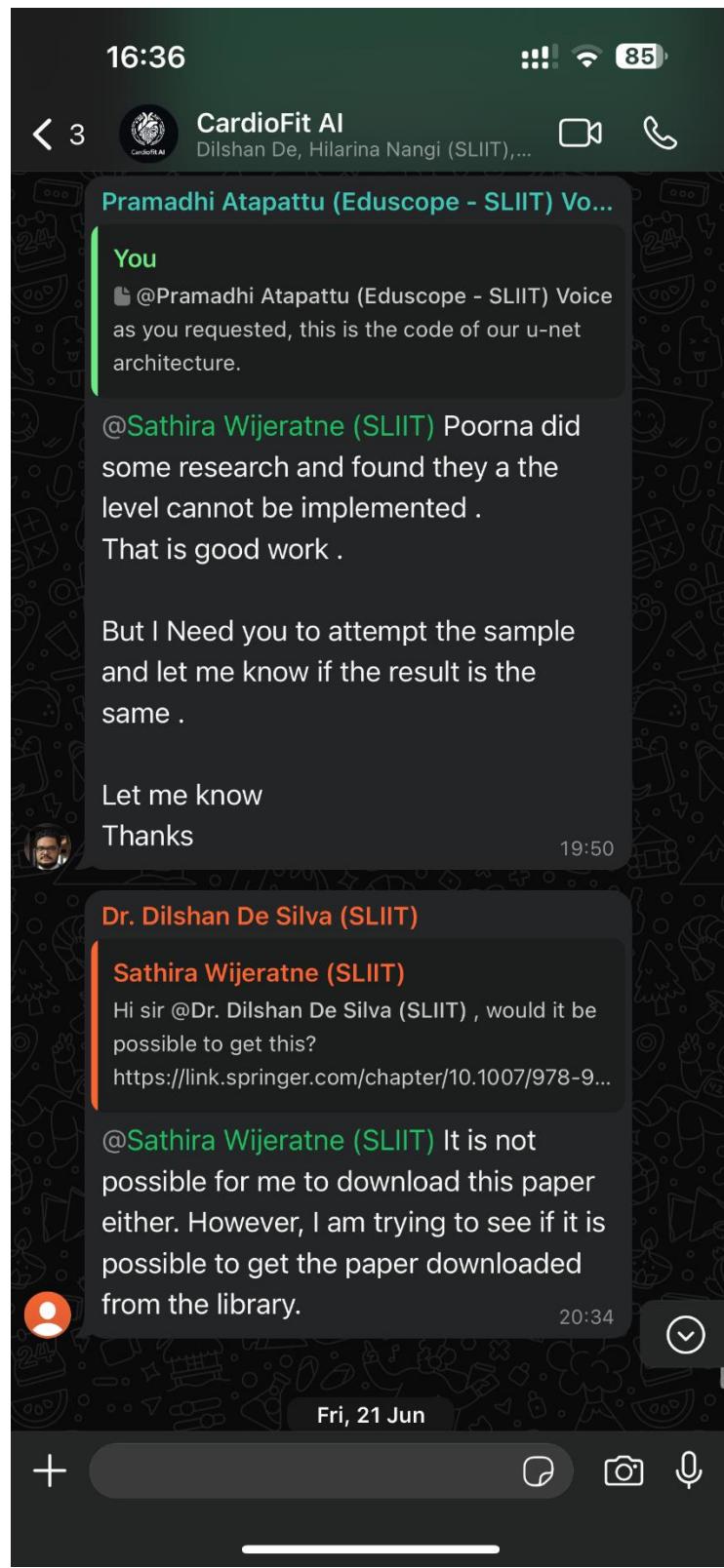


Figure 74: WhatsApp group screenshot 49

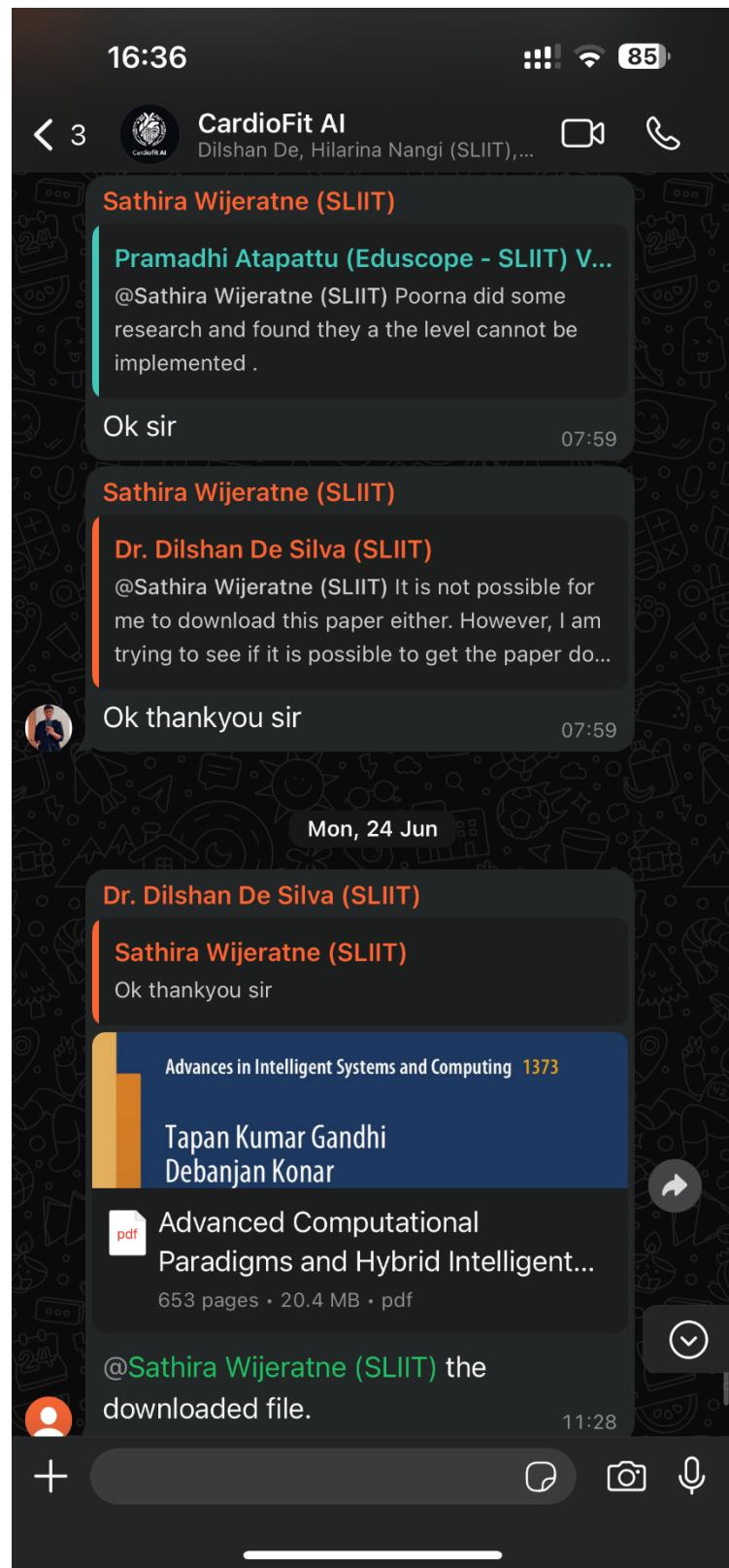


Figure 75: WhatsApp group screenshot 50

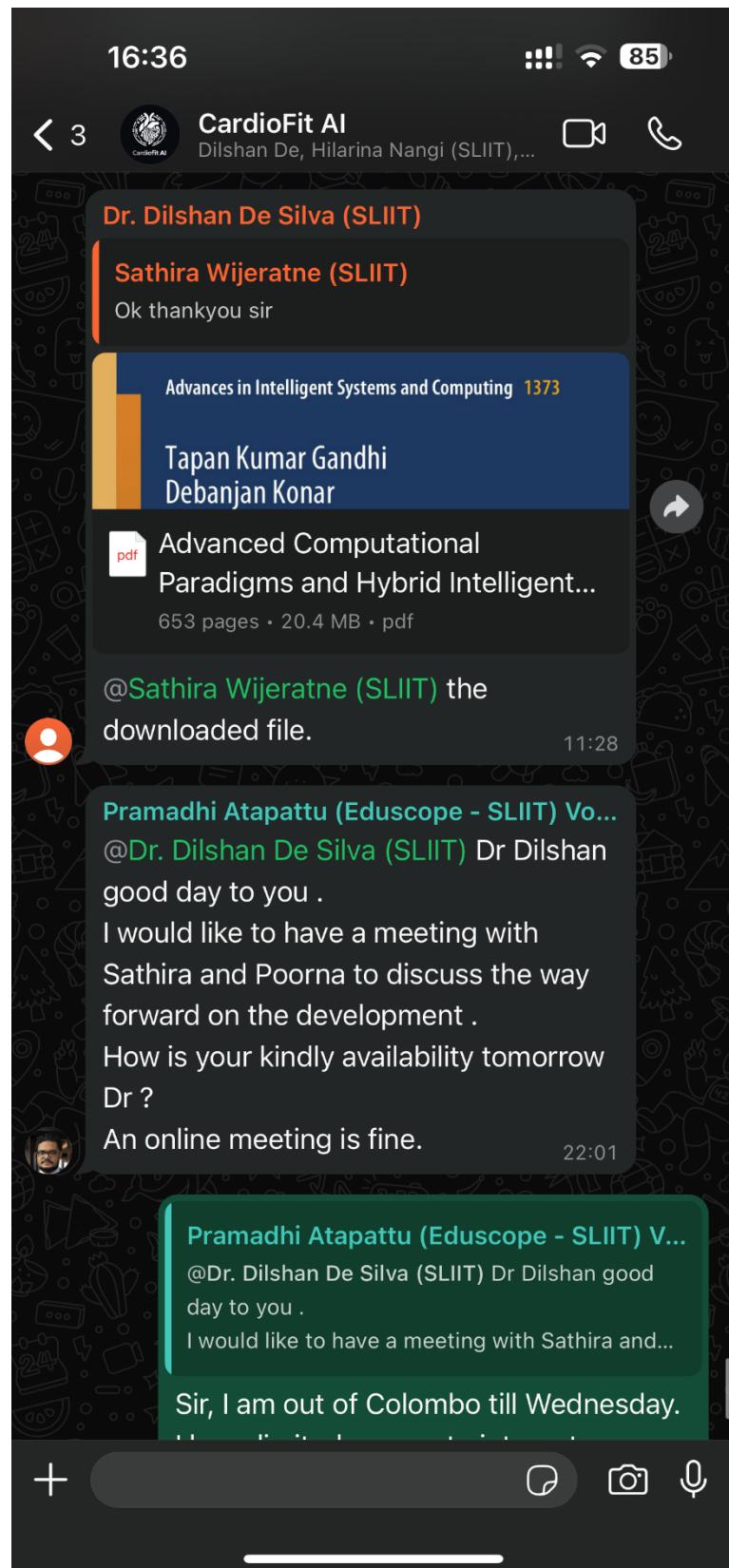


Figure 76: WhatsApp group screenshot 51

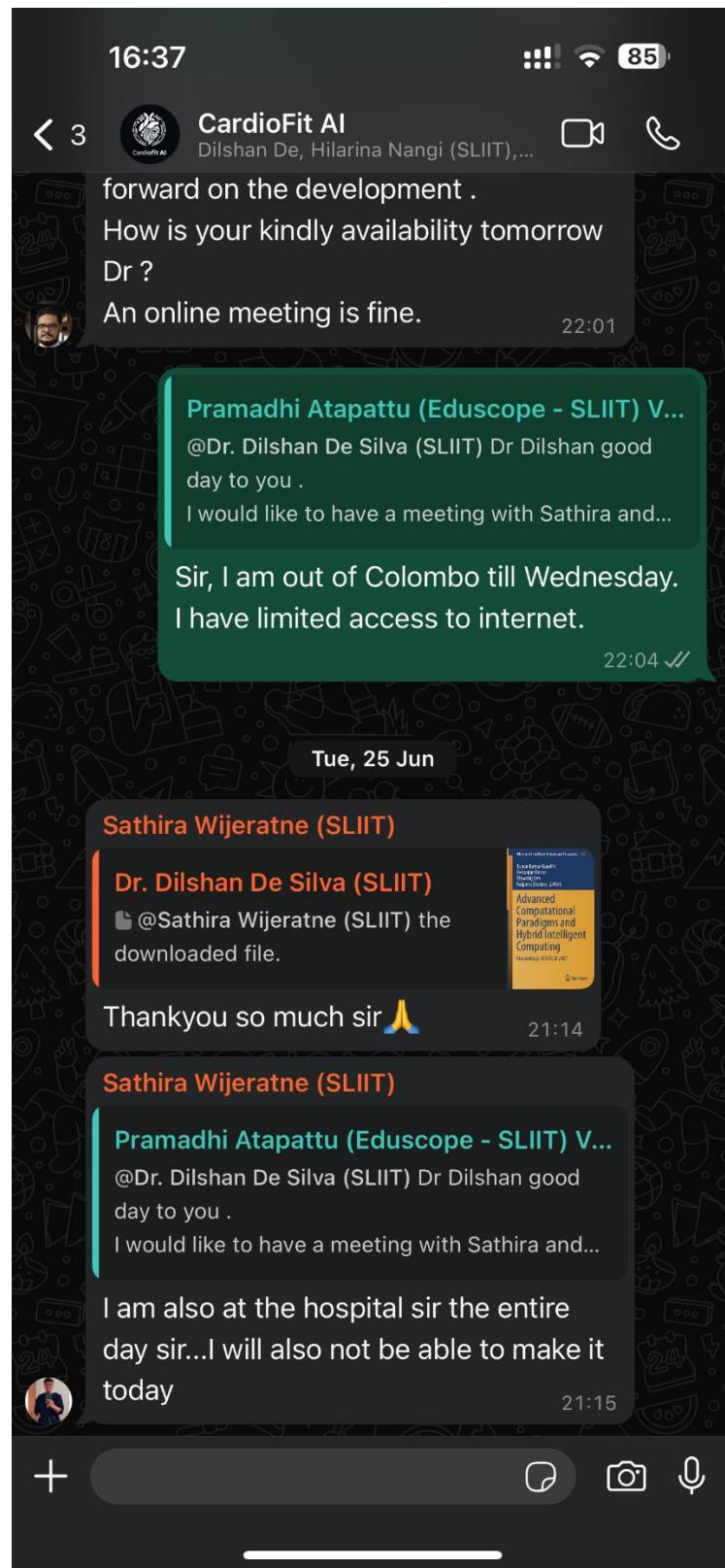


Figure 77: WhatsApp group screenshot 52

## 6. FIGMA PROTOTYPE DESIGNING

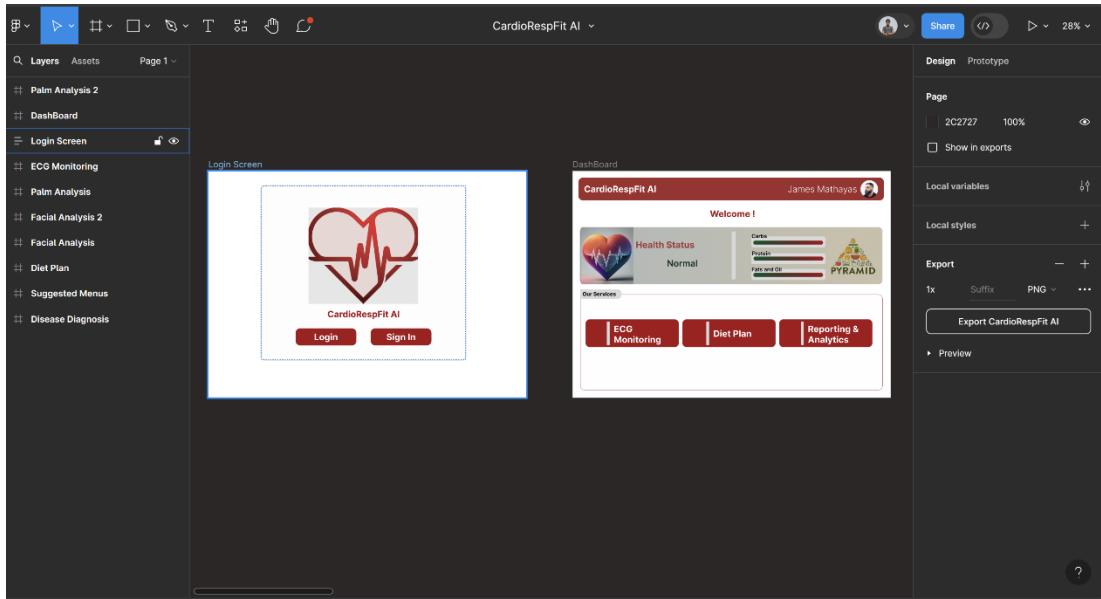


Figure 78: Figma Prototype 1

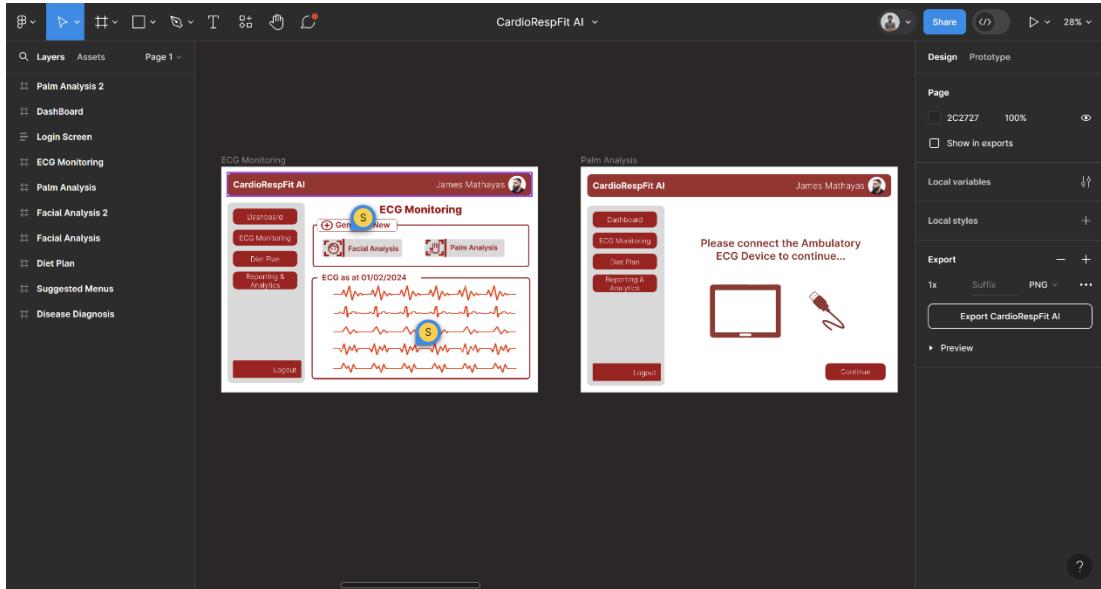


Figure 79: Figma Prototype 2

## 7. EVIDENCE FOR DEVELOPMENT

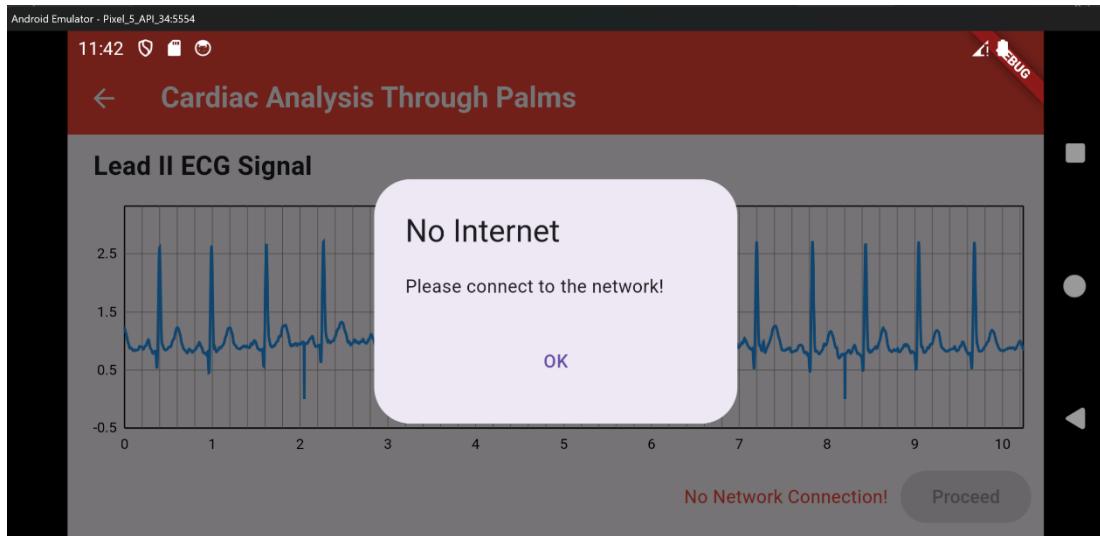


Figure 80: Implementation of the error and warning messages

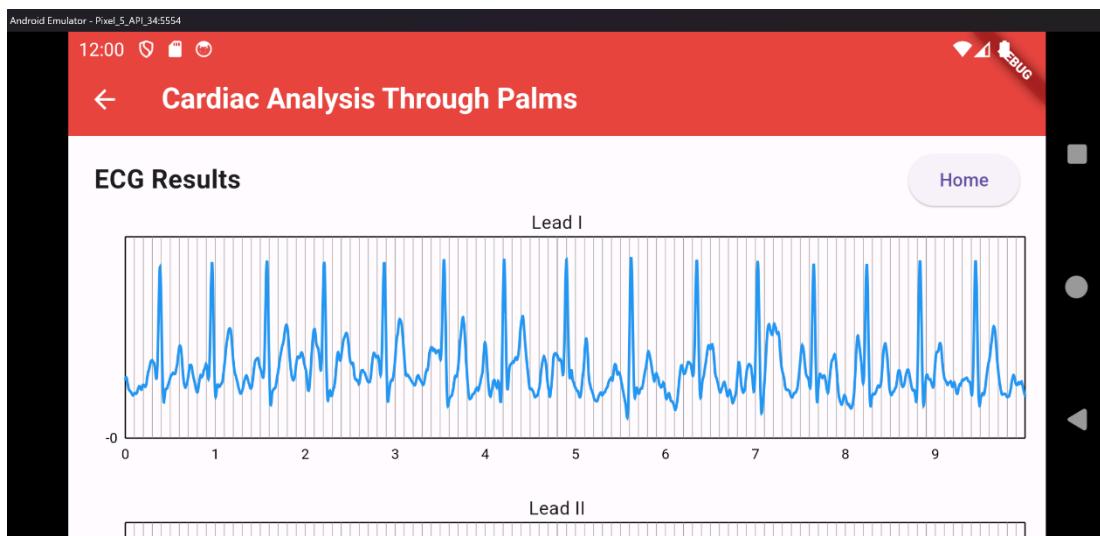


Figure 81: Visualizing the ECG in mobile app

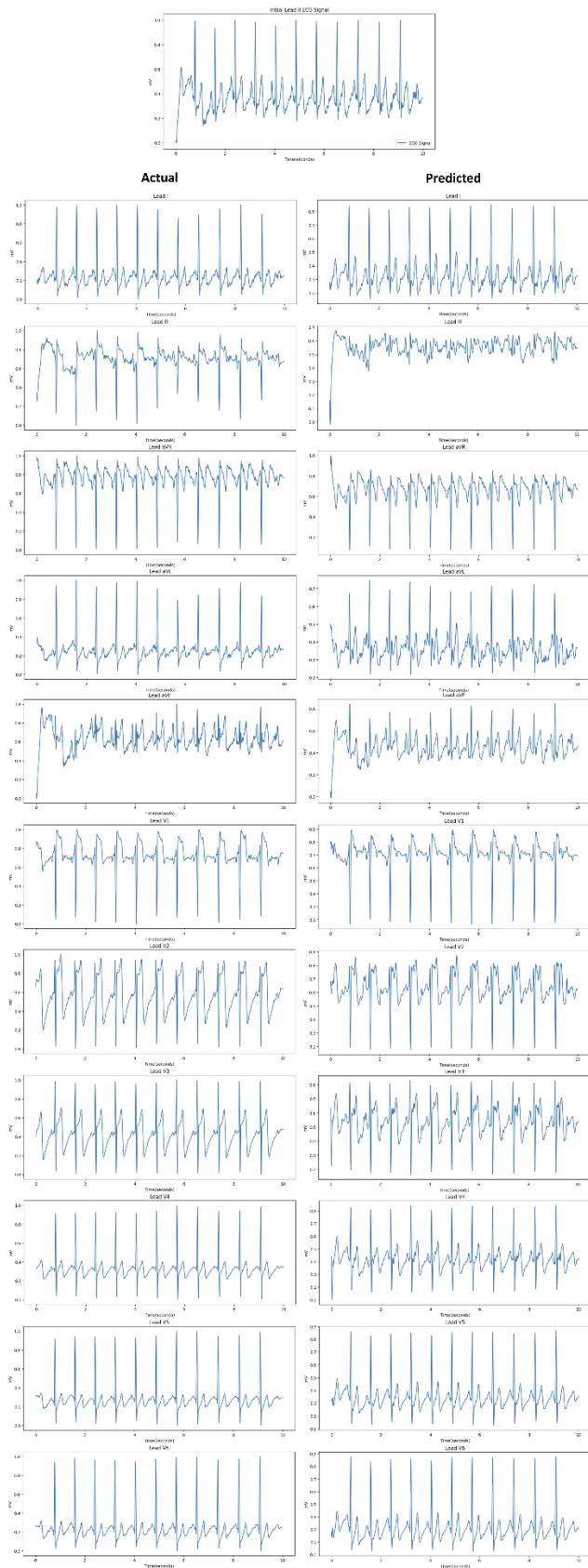


Figure 82: Results of the deep learning model 1

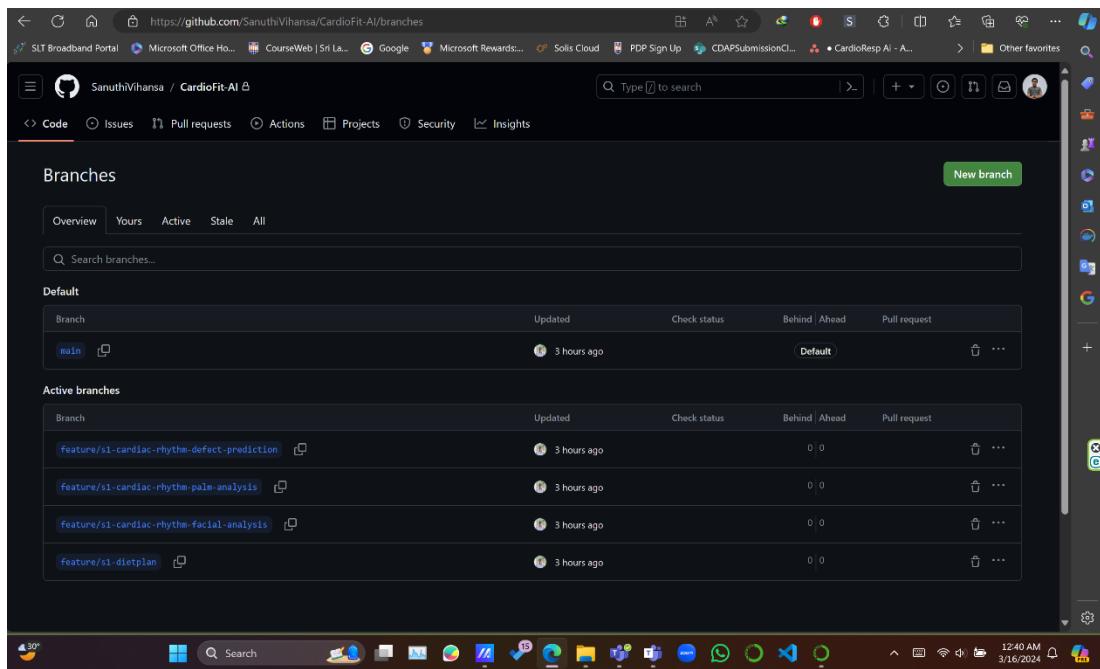


Figure 83: GitHub repository branch creation

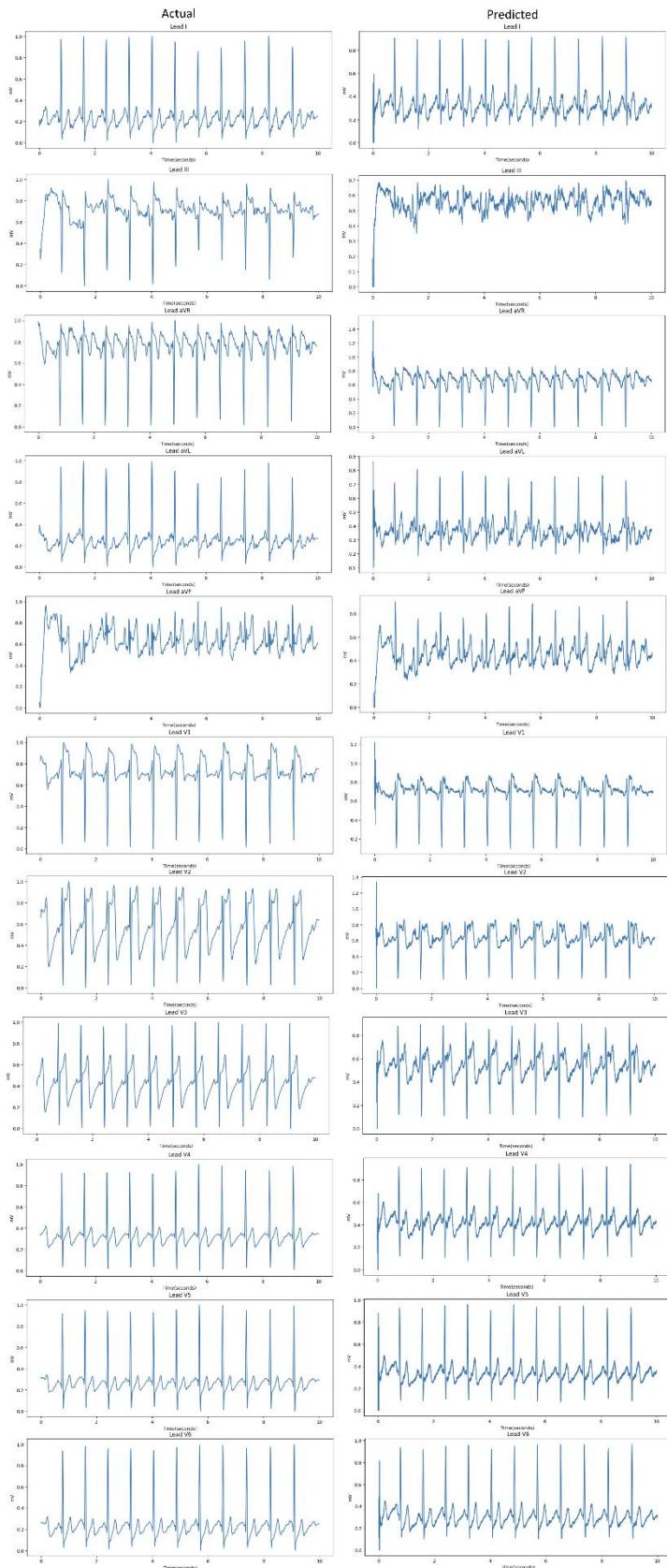


Figure 84: Results of the deep learning model 2



Figure 85: Working with Panacea's Medi Belt at PulzSolution (Pvt) Ltd.

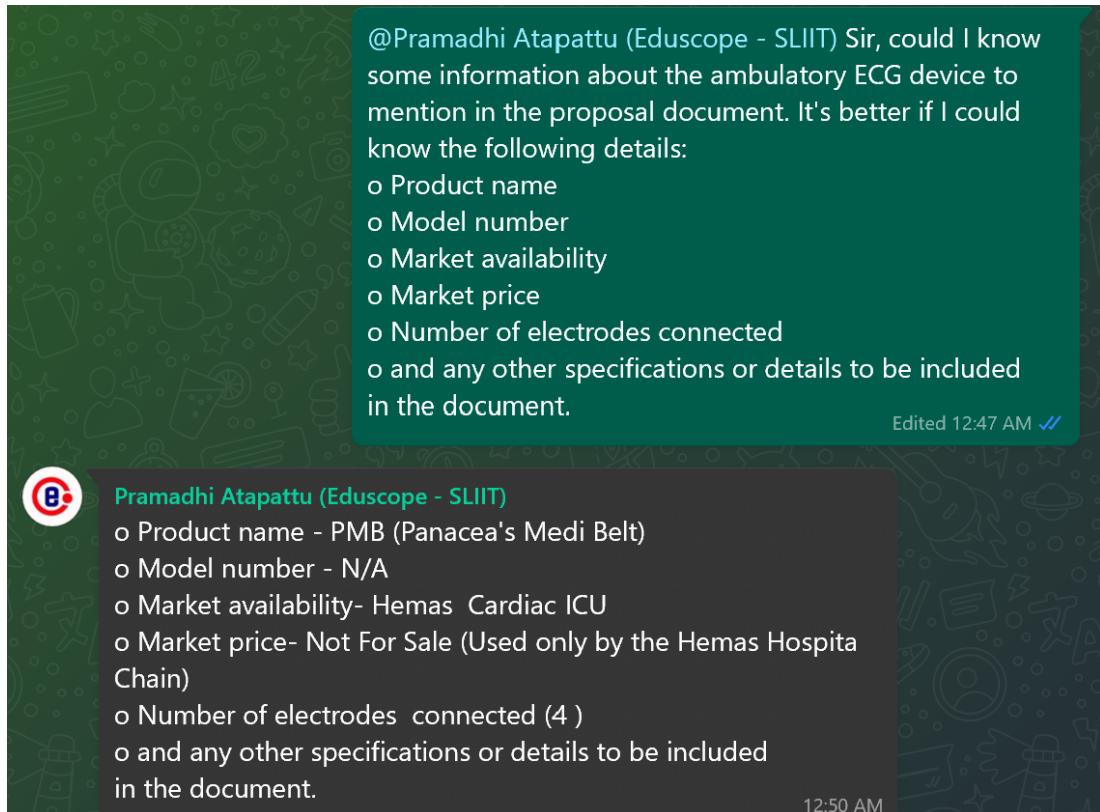


Figure 86: Ambulatory ECG device specifications

```
[13]: corr = stat.pearsonr(y_test_reshaped, pred_reshaped)
corr
```

```
[13]: PearsonRResult(statistic=0.5367207995230621, pvalue=0.0)
```

```
[14]: mse = sm.mean_squared_error(y_test_reshaped, pred_reshaped)
mse
```

```
[14]: 0.030068060464096574
```

```
► r2 = sm.r2_score(y_test_reshaped, pred_reshaped)
r2
```

```
[15]: 0.25069238965273066
```

[+ Code](#) [+ Markdown](#)

Figure 87: Metric evaluation of the deep learning model

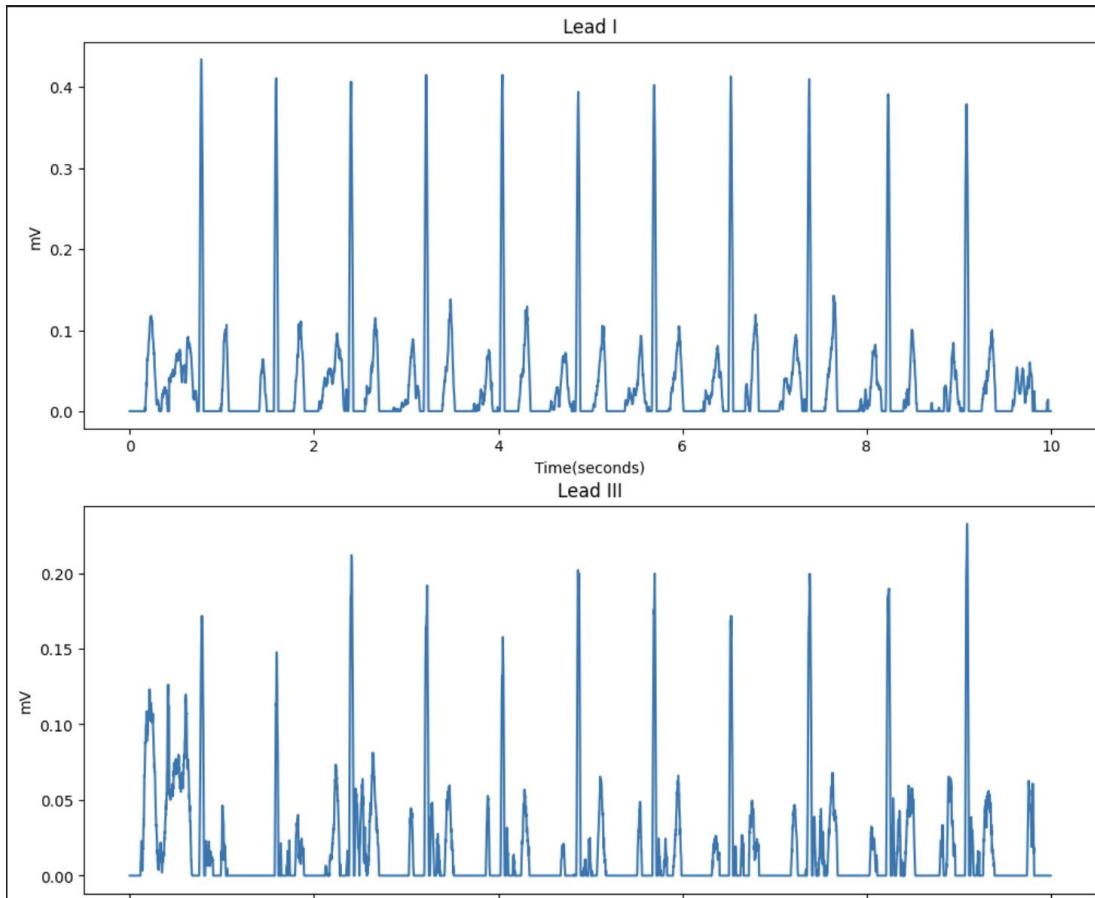


Figure 88: Results before the normalization

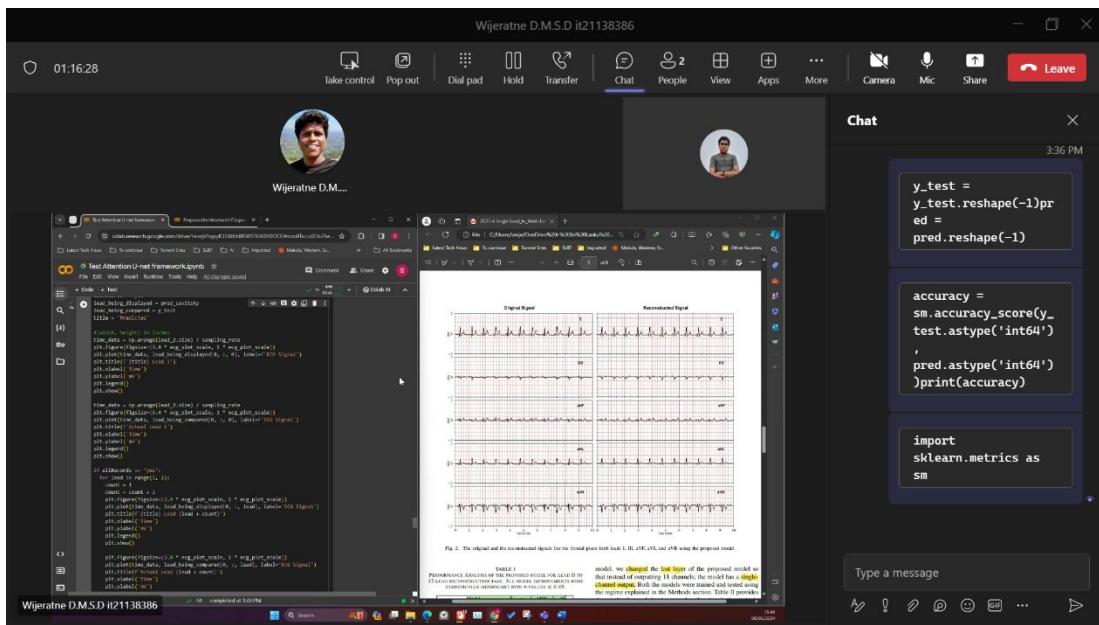


Figure 89: Prediction comparison with past research

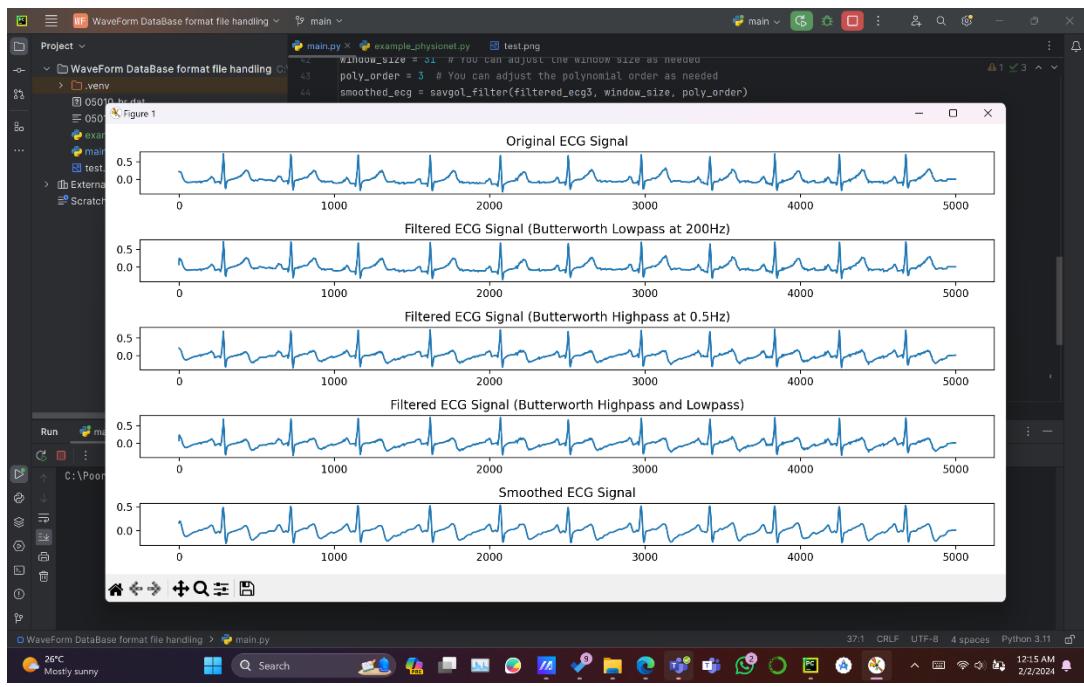


Figure 90: Filter testing

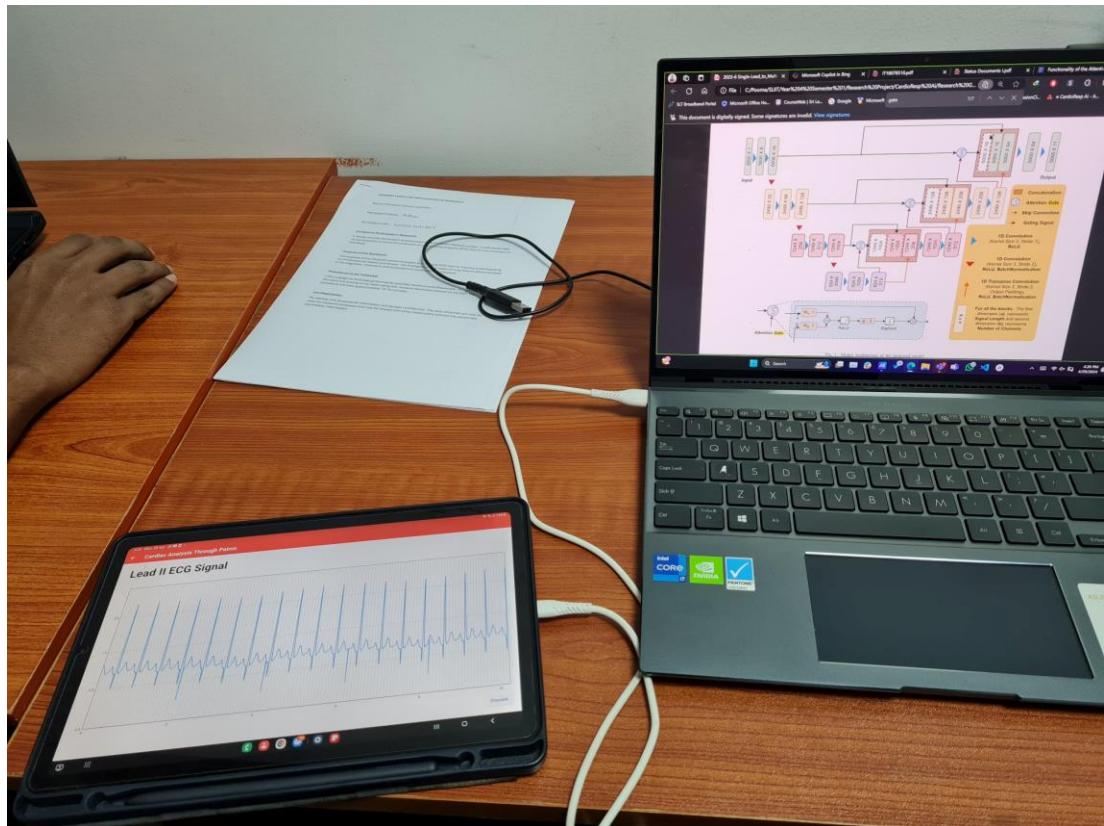


Figure 91: Application testing on tablet device

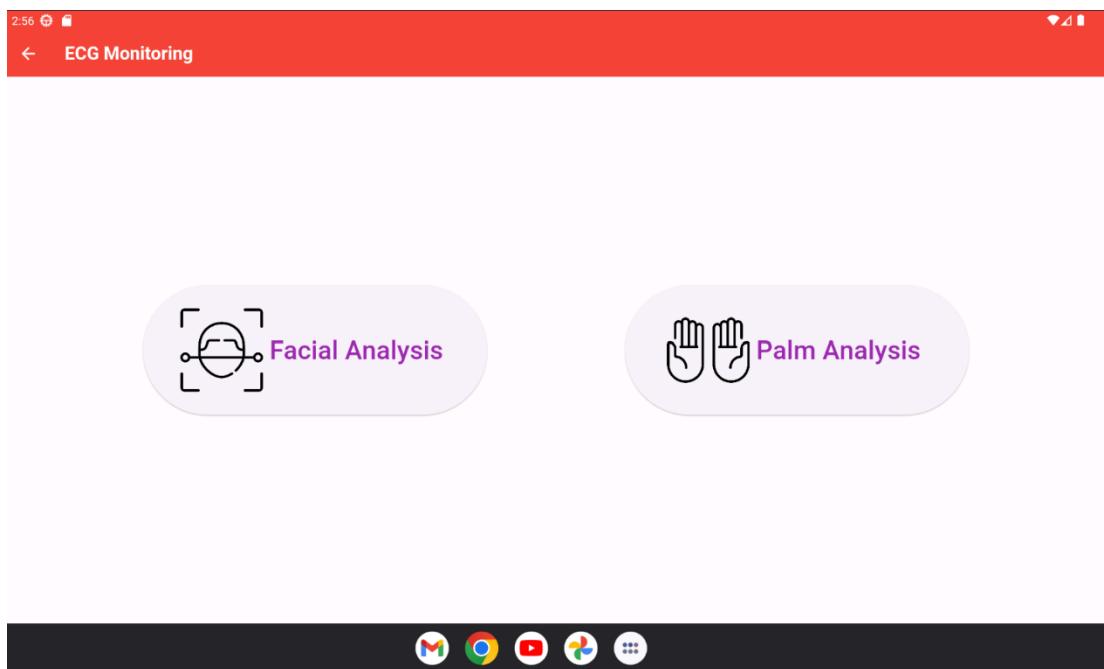


Figure 92: User interface 1

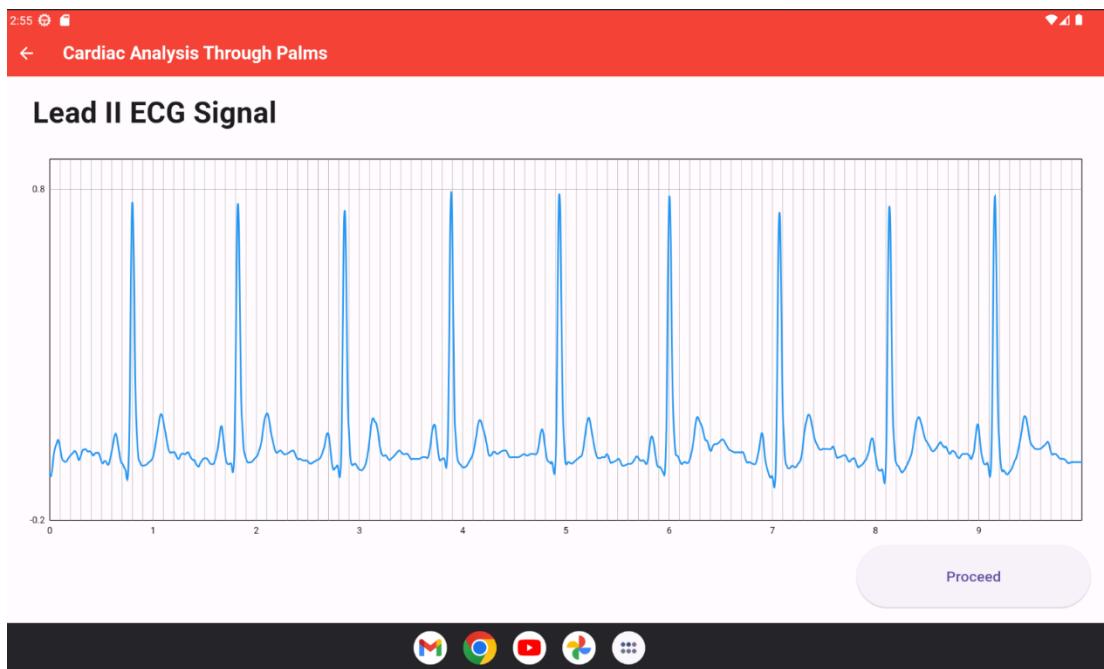


Figure 93: User interface 2

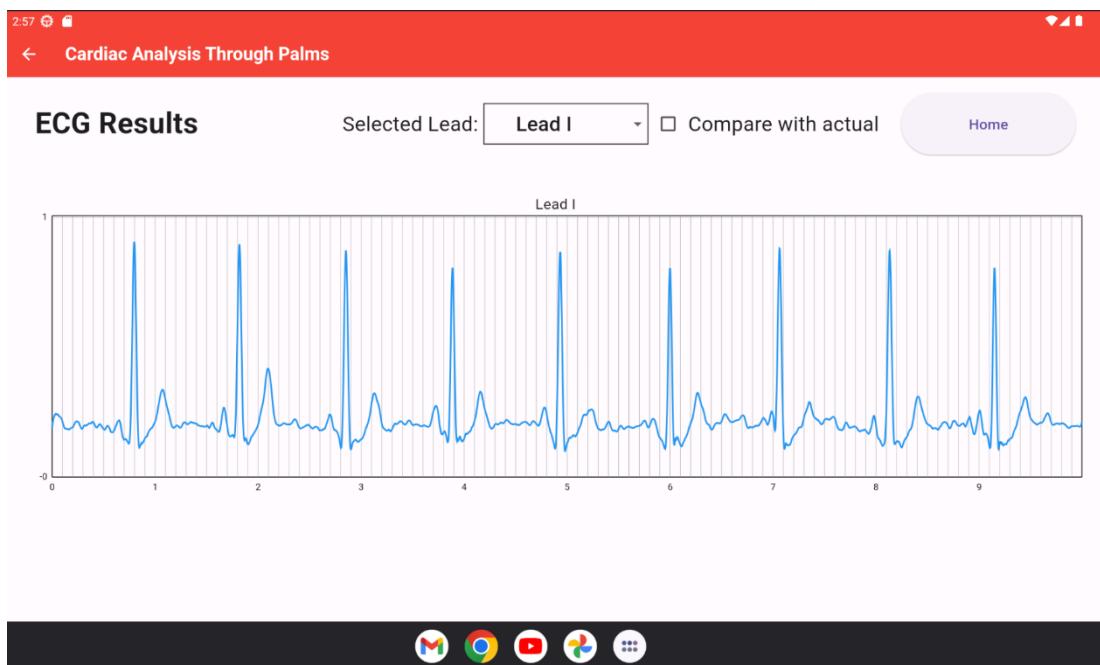


Figure 94: User interface 3

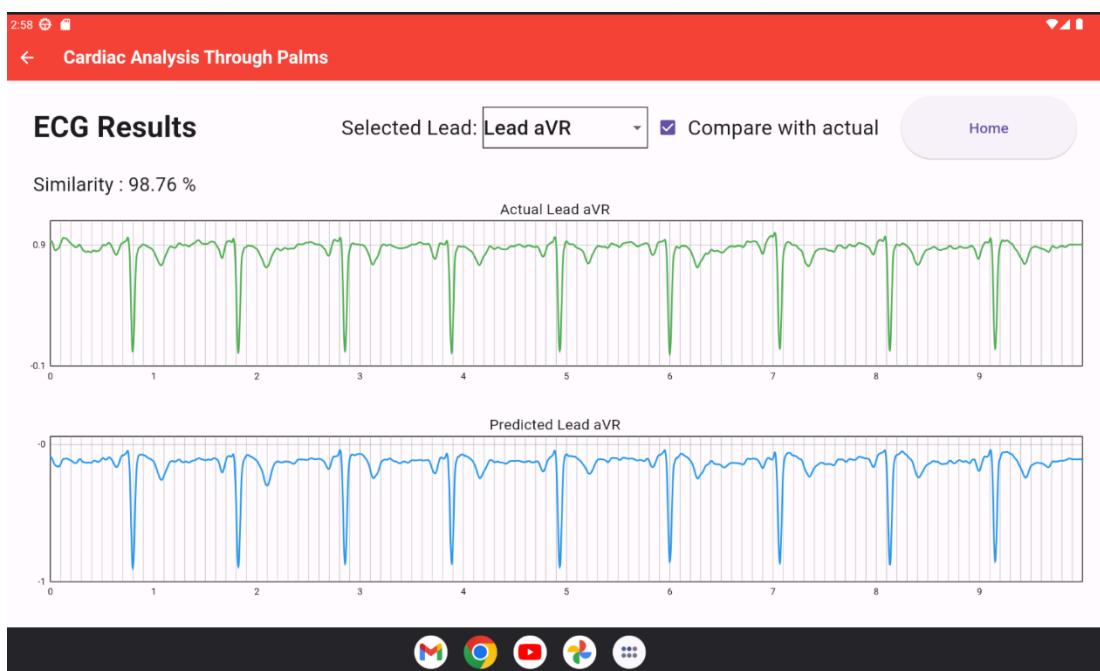


Figure 95: User interface 4

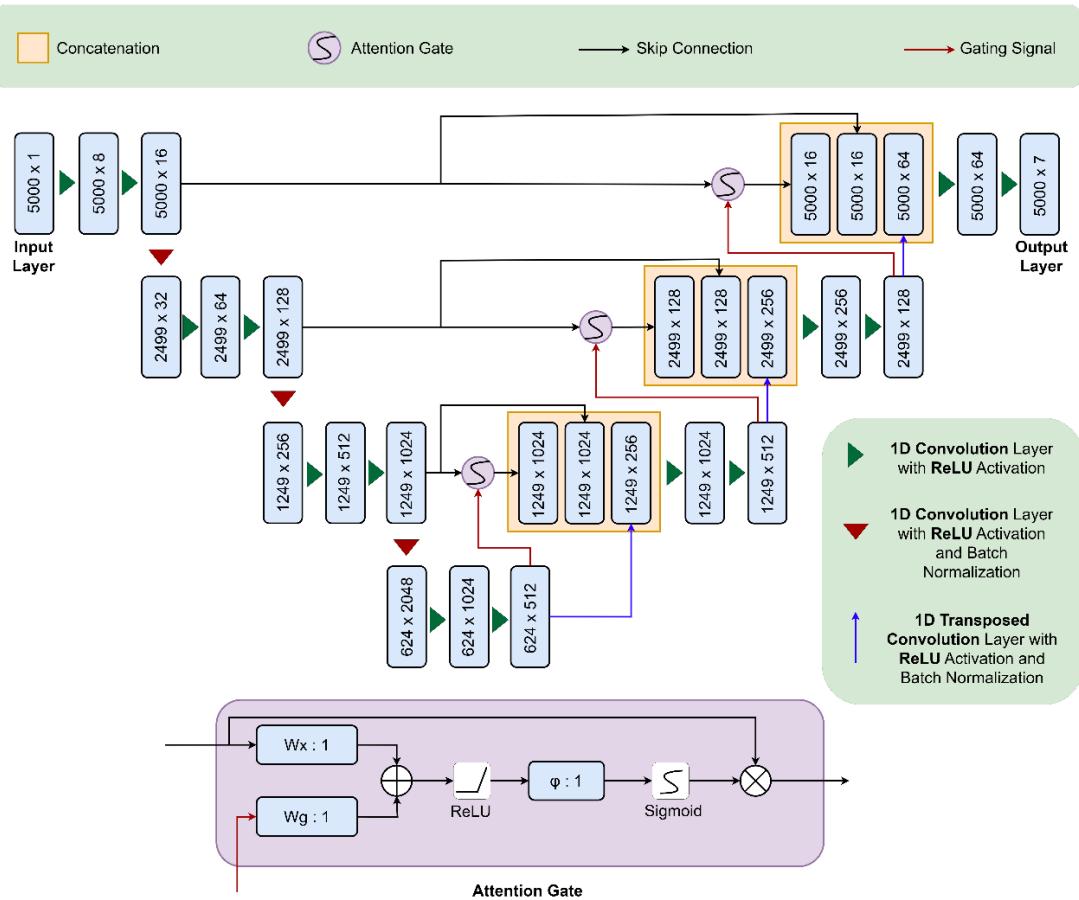


Figure 96: Modified Attention U-Net model - version 1

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

0.8589062068757601

Figure 97: Pearson correlation coefficient of model 1

```
r2 = sm.r2_score(y_test_reshaped, pred_reshaped)
r2
```

0.7345111236895583

Figure 98:  $R^2$  value of model 1

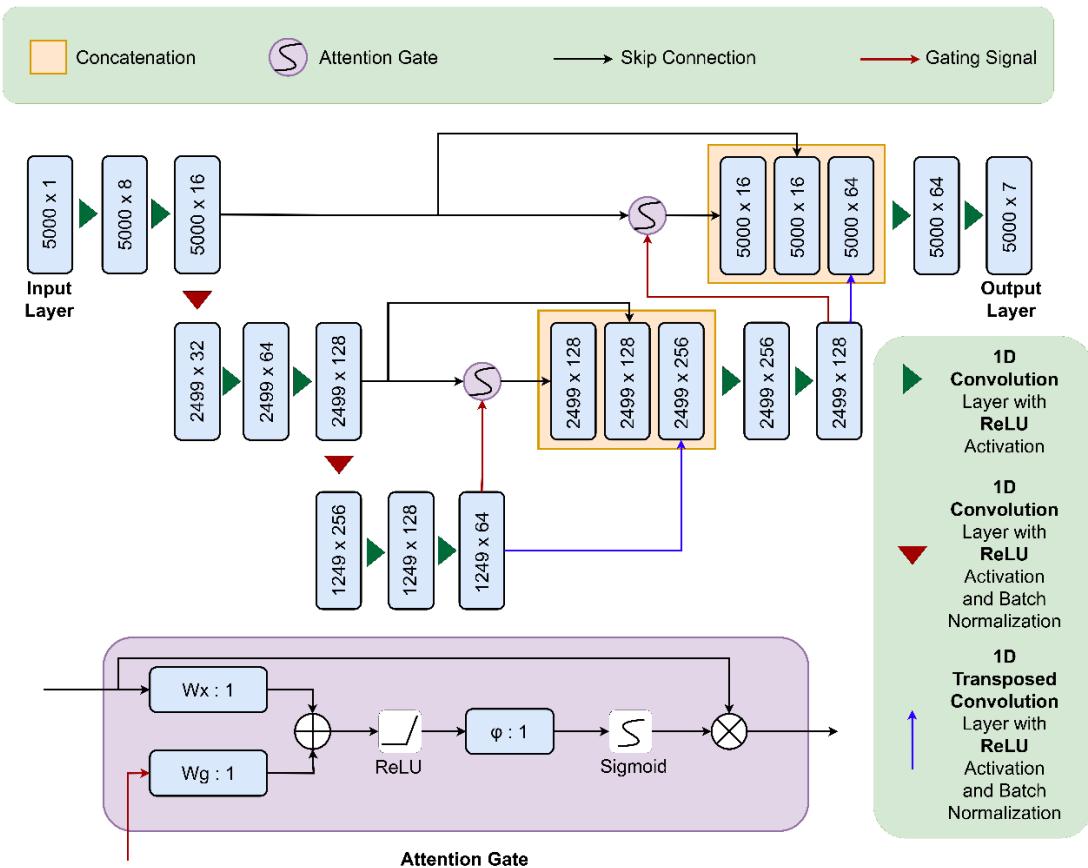


Figure 99: Modified Attention U-Net model - version 2

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

0.7872768455886091

Figure 100: Pearson correlation coefficient of model 2

```
r2 = sm.r2_score(y_test_reshaped, pred_reshaped)
r2
```

0.6196834569244696

Figure 101:  $R^2$  value of model 2

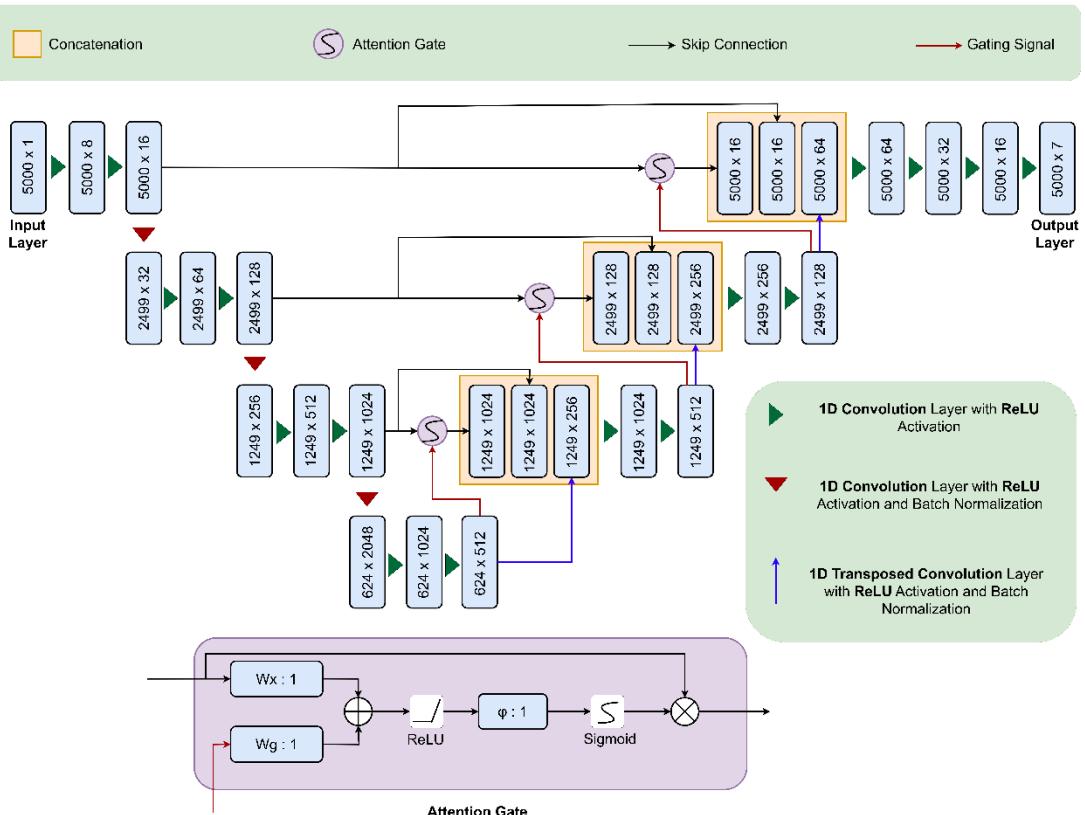


Figure 102: Modified Attention U-Net model - version 3

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

0.8831847485492352

Figure 103: Pearson correlation coefficient of model 3

```
r2 = sm.r2_score(y_test_reshaped, pred_reshaped)
r2
```

0.7788354300322021

Figure 104: R<sup>2</sup> value of model 3

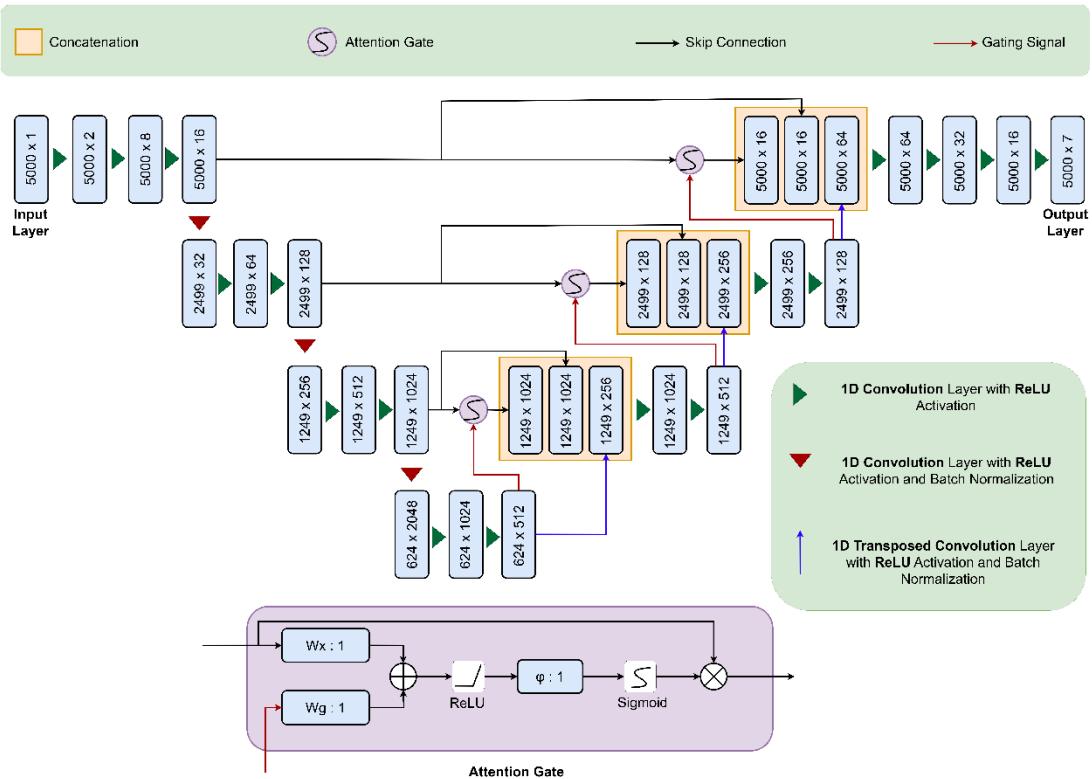


Figure 105: Modified Attention U-Net model - version 4

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

0.86515533606585

Figure 106: Pearson correlation coefficient of model 4

```
r2 = sm.r2_score(y_test_reshaped, pred_reshaped)
r2
```

0.7458658577986892

Figure 107: R<sup>2</sup> value of model 4

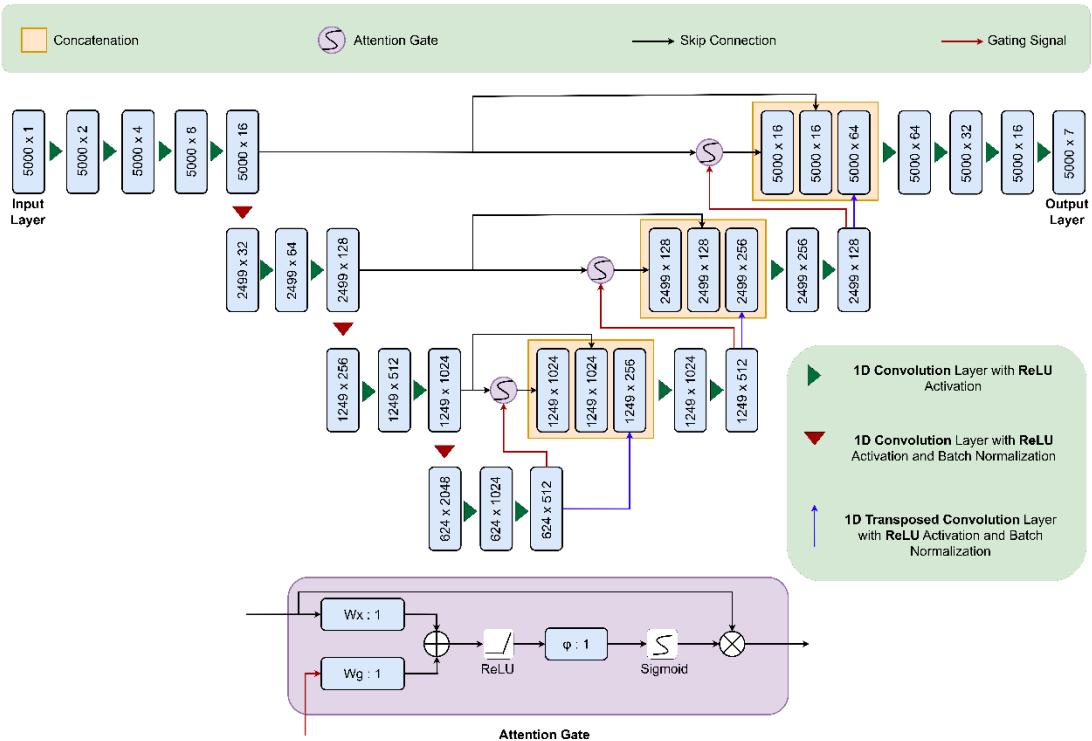


Figure 108: Modified Attention U-Net model - version 5

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

0.7281917306265144

Figure 109: Pearson correlation coefficient of model 5

```
r2 = sm.r2_score(y_test_reshaped, pred_reshaped)
r2
```

0.5037330568862546

Figure 110: R<sup>2</sup> value of model 5

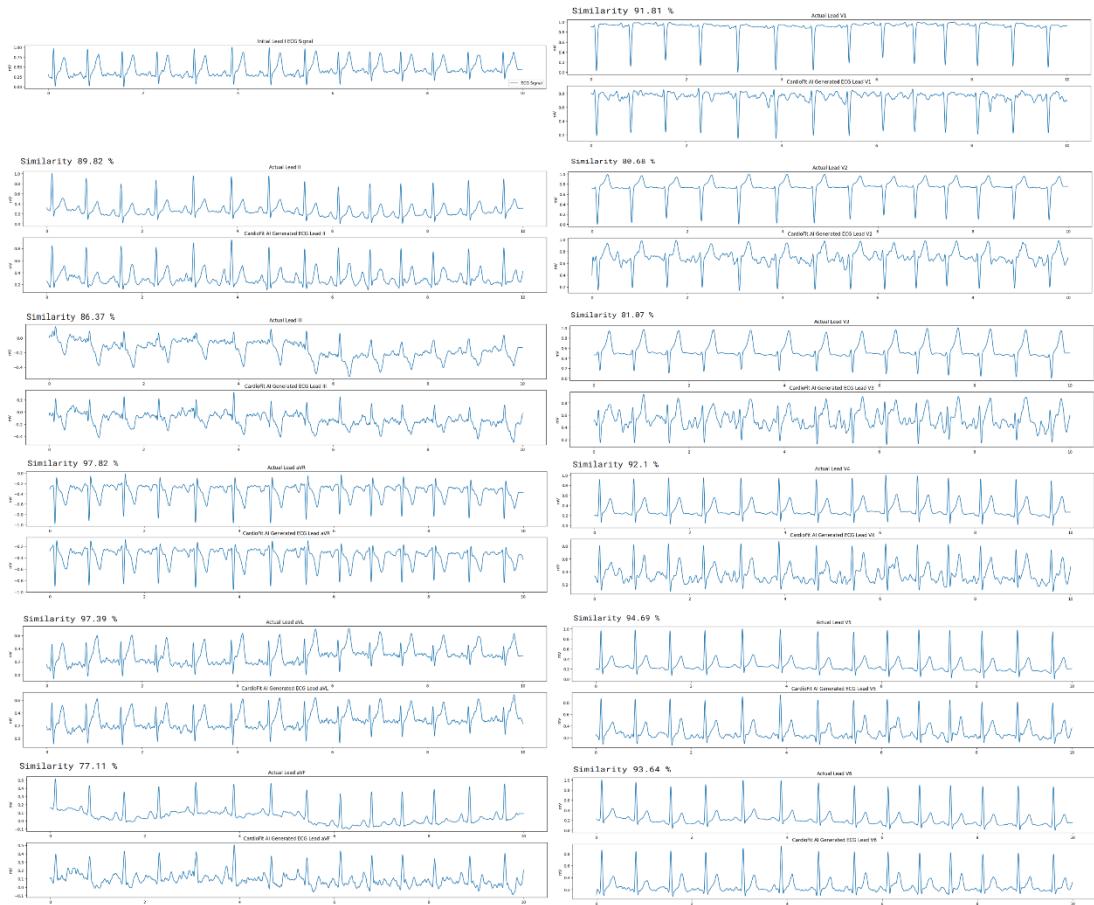


Figure 111: Comparison of the results of model version 5



Figure 112: Visit of GemLand HealthCare Avissawella - 1



Figure 113: Visit of GemLand HealthCare Avissawella – 2



Figure 114: Dashboard UI of the mobile application



Figure 115: ECG Monitoring menu UI of the mobile application



Figure 116: ECG lead I UI of the mobile application

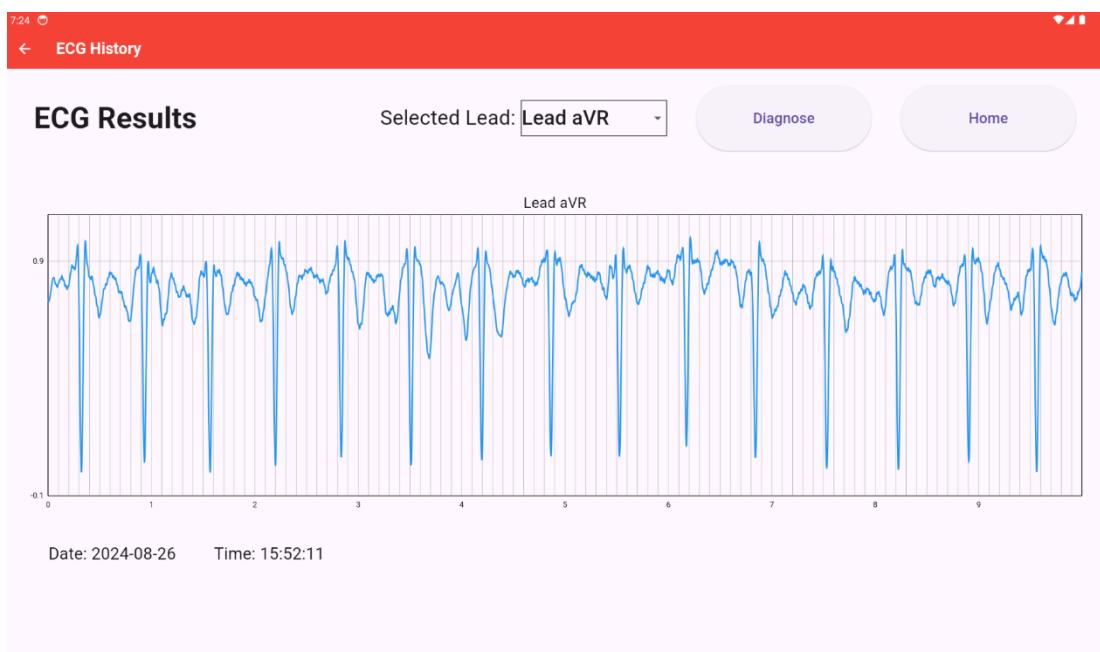


Figure 117: Reconstructed ECG UI of the mobile application

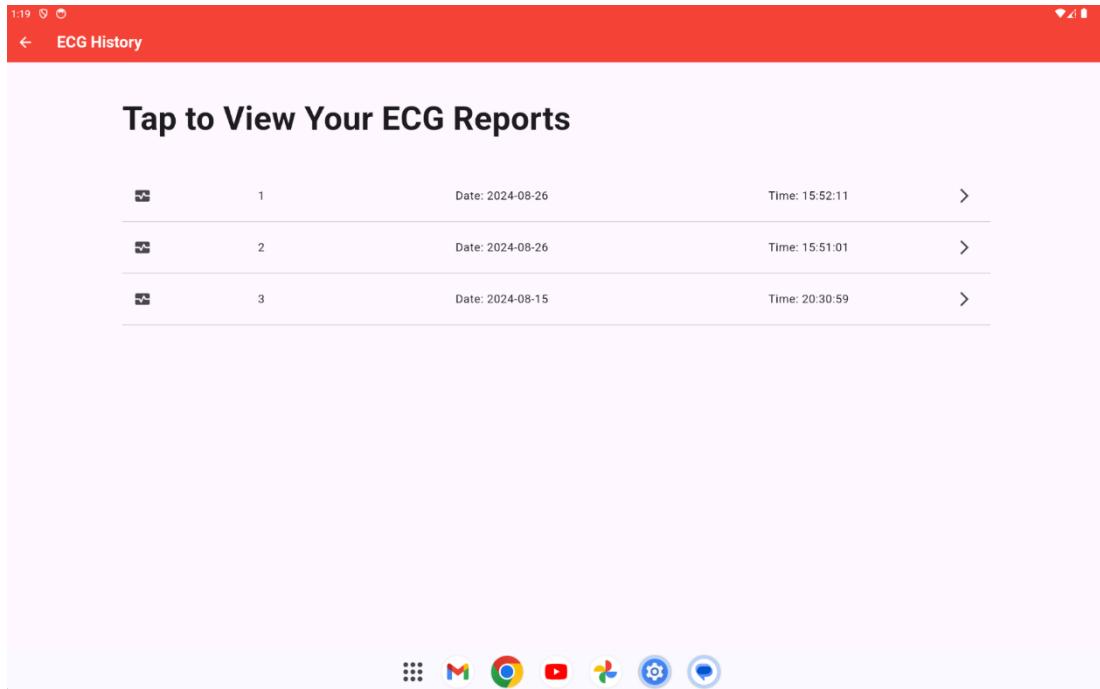


Figure 118: ECG history UI of the mobile application

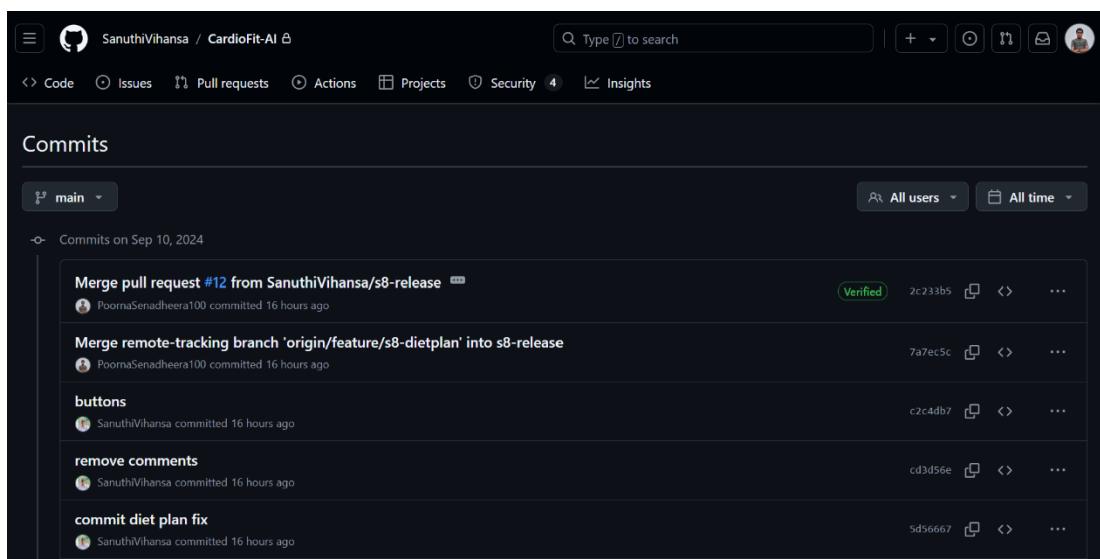


Figure 119: Merged the mobile application

## 8. RESEARCH PAPER SUBMISSIONS

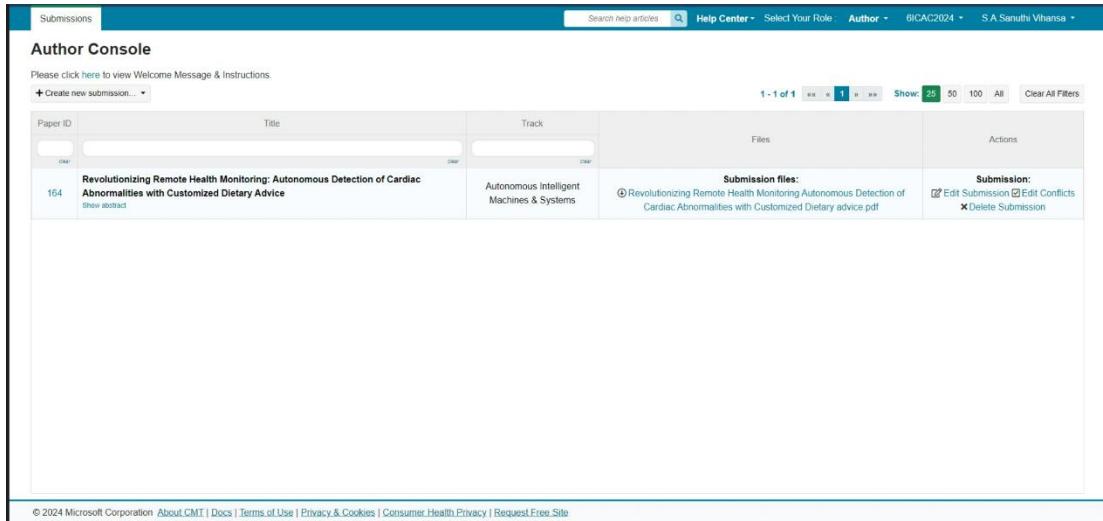


Figure 120: Research paper submission to ICAC

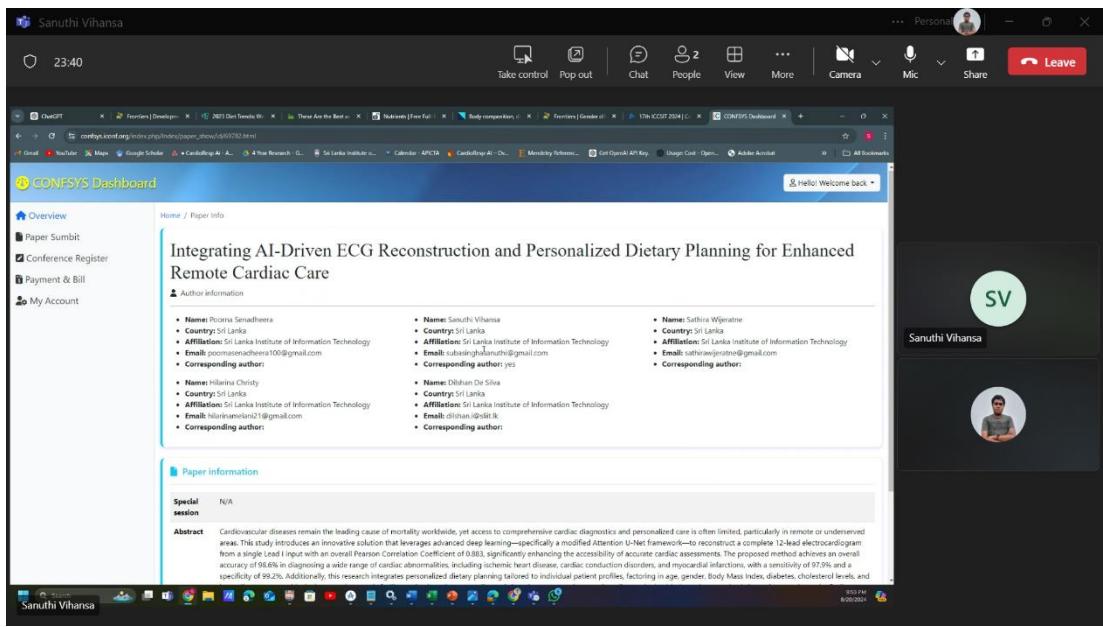


Figure 121: Research paper submission to ICCSIT

## ICCSIT 2024-Paper Review Process by the Journal JAIT-C0081 [Inbox](#)

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iccsit <iccsit@iacsit.net>  
to me, subasinghasanuthi, sathirawijeratne, hilarinamelani21, dilshan.i, editor ▾

Aug 29, 2024, 12:22PM (12 hours ago)



Dear Poorna Senadheera, Sanuthi Vihansa, Sathira Wijeratne, Hilarina Christy, Dilshan De Silva,

Greetings!

Thanks for your submission and support to **ICCSIT 2024**(<http://www.iccsit.org/>)---the 17th International Conference on Computer Science and Information Technology (ICCSIT 2024) will be held in Dubai, UAE during October 23-25, 2024.

Your paper (Paper Title:Integrating AI-Driven ECG Reconstruction and Personalized Dietary Planning for Enhanced Remote Cardiac Care, paper ID:**C0081**) looks nicely prepared and has already passed the preliminary review of the conference committee and maybe be published in the **following journal**.

**Journal of Advances in Information Technology (JAIT)**<http://www.jait.us/> )

ISSN: 1798-2340 (Online) | DOI: 10.12720/jait

Abstracting/Indexing: ESCI (Web of Science), Scopus (Since 2020), EBSCO, Google Scholar, CNKI, etc.

**The paper will be reviewed by the journal JAIT, the following paper review process will be contacted by the editor of the journal directly, I have forward this email to the editor of the journal JAIT, they will contact you through email directly.**

If you have WeChat, you can add our **WeChat: csit2009** to get quick response.

If you have any questions, please feel free to contact me.

**Thanks & regards,**

Luna Wu

Conference Secretary

Tel: +86-18000547208

Wechat: csit2009

Email: [iccsit@iacsit.net](mailto:iccsit@iacsit.net)

Web: <http://iccsit.org>

Figure 122: Acceptance notification from ICCSIT

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28-29 April | Berlin, Germany

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### Thank You S.A.S Vihansa!

Your paper submission titled "Revolutionizing Remote Health Monitoring: Autonomous Detection of Cardiac Abnormalities with Customized Dietary Planning" has been received and our team is processing your submission.

You will receive an email within next 24 hours with login details.

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Submission of Manuscripts can also be done by email to [FICC@SAIConference.com](mailto:FICC@SAIConference.com)

Please Note the following when submitting by Email:

- The Subject Line Should be : FICC 2025 Paper Submission : "Paper Title"
- Cover letter should be included along with submission which should include the domain of research to fasten the review process of the manuscript.
- Manuscript should be sent in .docx or .pdf format.

Figure 123: Research paper submission to FICC

Acceptance Notification : Future of Information and Communication Conference (FICC) ✉️ ↗  
2025 Inbox ×



**Future of Information and Communication Conference** <ficc@saiconference.com>  
to subasinghasanuthi, me, sathriwijeratne, hilarinamelan121, dilshan.i ▾

Thu, Aug 29, 3:51PM (8 hours ago) ☆ 😊 ↳ ⋮

Dear S. A. Sanuthi Vihansa, P. V. P. P. Senadheera, D. M. S. D. Wijeratne, H. M. Christy, Dilshan De Silva,

Congratulations, your submitted paper "Revolutionizing Remote Health Monitoring: Autonomous Detection of Cardiac Abnormalities with Customized Dietary Planning" has been reviewed and accepted for presentation at the Future of Information and Communication Conference 2025, to be held on 28 & 29 April 2025 in Berlin, Germany.

FICC attracts researchers, scientists and technologists from some of the top companies, universities, research firms and government agencies from around the world. Join us for FICC 2025, the pre-eminent forum for reporting technological breakthroughs in the areas of Computing , Electronics, AI, Robotics, Security & Communications.

In order to attend, present and publish your paper, please register online at <https://saiconference.com/FICC2025/Register> (Registration closes October 1, 2024). We also accept fees via bank/wire transfer.

FICC 2025 proceedings will be published in Springer series "Lecture Notes in Networks and Systems" and submitted for consideration to Web of Science, SCOPUS, INSPEC, WTI Frankfurt eG, zbMATH and SCImago.

The Conference Board has decided that the reviewers' feedback and invitation letter for visa applications will be emailed to the author(s) after the registration process. If you would like to receive the reviewer feedback for representation at your university/organization, please request them as a reply to this email. Only registered papers will be invited for submitting the camera ready version.

Again, congratulations and I look forward to your participation!

Regards,  
Kohei Arai  
Program Chair  
Future of Information and Communication Conference (FICC)

Figure 124: Acceptance notification from FICC