

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

**2021 - 042**

**Status Document - 2  
IT19142838 – B.W.E.K. Senarathna**

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Co- supervisor: Mr. Samitha Vidhanaarachchi**

**B.Sc. (Hons) Degree in Information Technology Specialized in Data Science  
Department of Computer Science and Software Engineering**

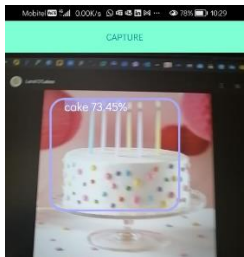
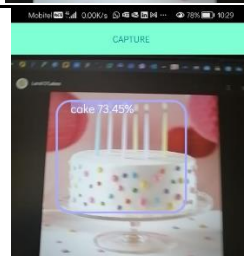
**Sri Lanka Institute of Information Technology Sri Lanka**

**May 2023**

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## 01. Test Results


Test Case Id	01
Test Case	Verify objects detected in the mobile app
Test Scenario	Verify the realtime objects show in camera show actual object names.
Input	Camera feed
Expected Output	
Actual Result	
Status (Pass/Fail)	Pass


Test Case Id	02
Test Case	Directing to relevant game after capturing the object
Test Scenario	Capture an object from the environment The relevant gaming environment should be loaded.
Input	Capture a cake image from the camera
Expected Output	

	 	
Actual Result	 	
Status (Pass/Fail)	Pass	

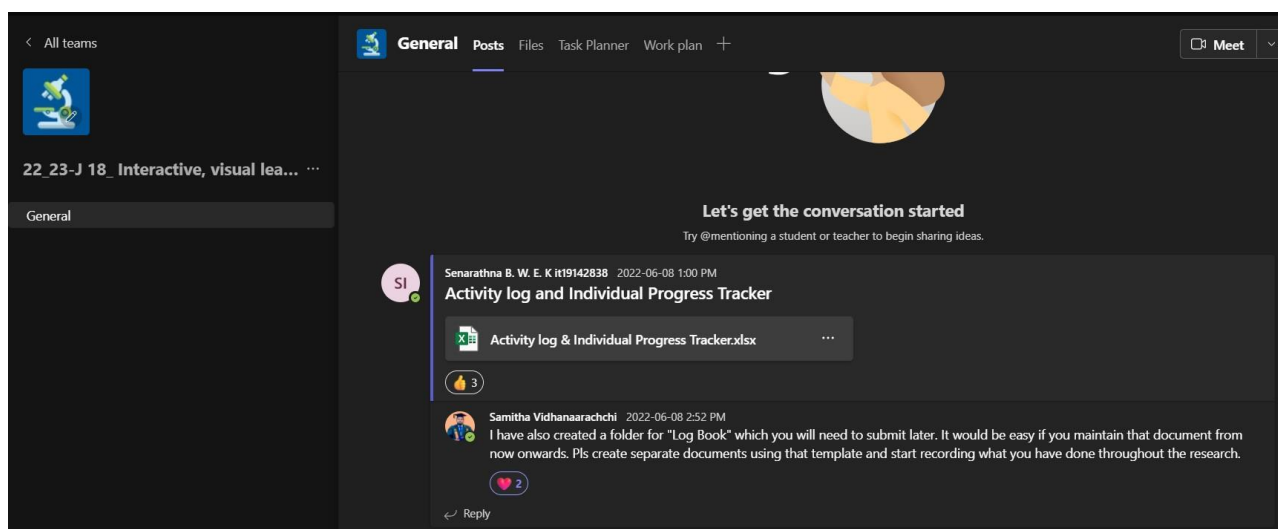
Test Case Id	03
Test Case	Checking detections from Siamese model
Test Scenario	Tested the model using
Input	

Expected Output	Classify the object as a bat
Actual Result	bat
Status (Pass/Fail)	Pass

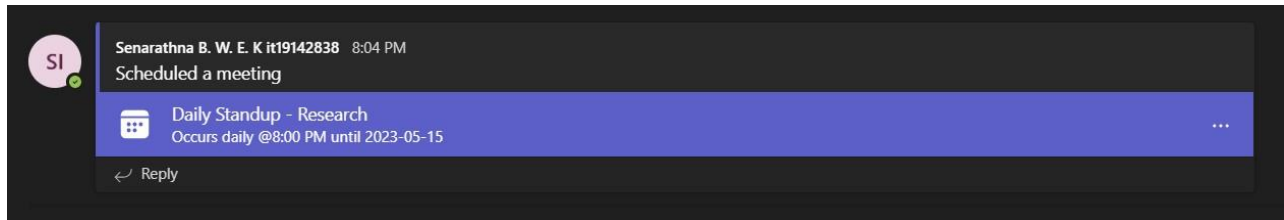
Test Case Id	04
Test Case	Gamification testing
Test Scenario	Testing the drag and drop game with specific targets word order
Input	
Expected Output	Able to drag drop objects in specific targets with word order

Actual Result	
Status (Pass/Fail)	Pass

## 02. Screenshots of the chats in MS Teams



Creating the Teams group and adding individual progress tracker

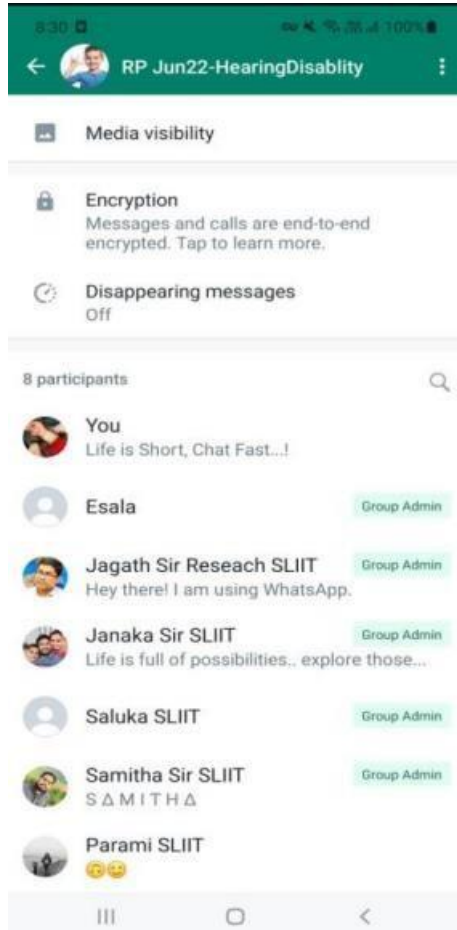


Daily standup meeting to track progress

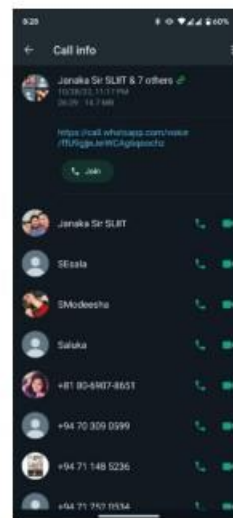
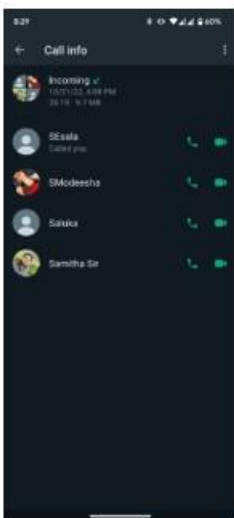
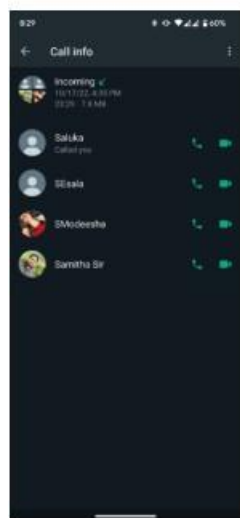
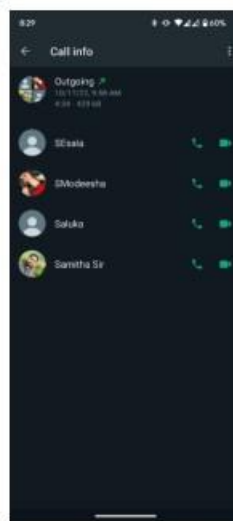
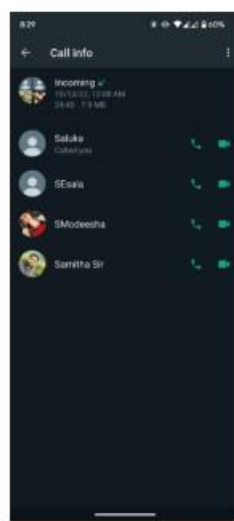
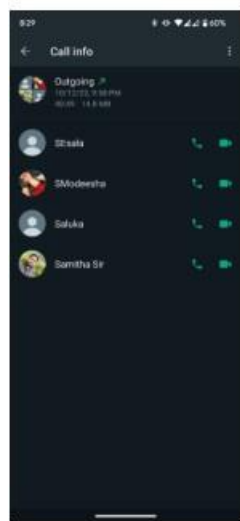
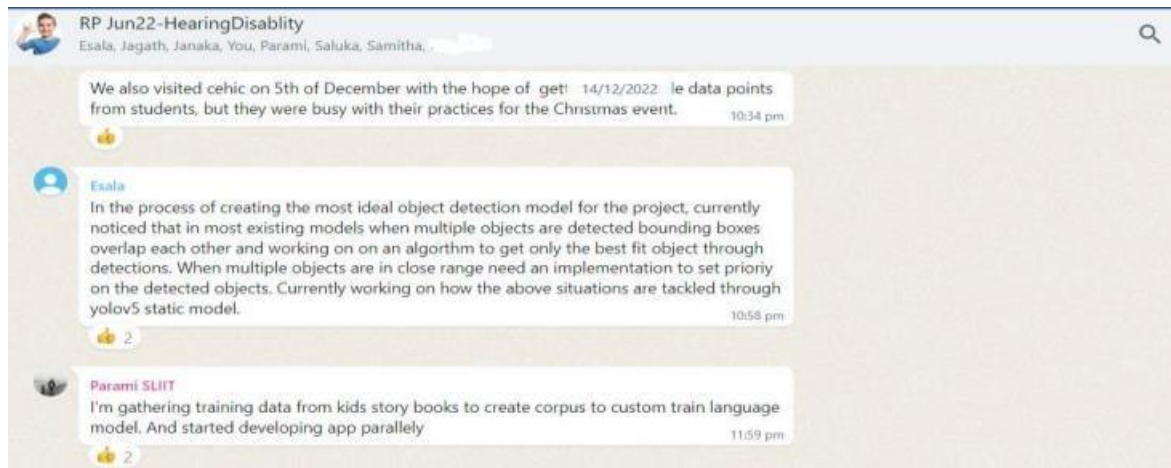


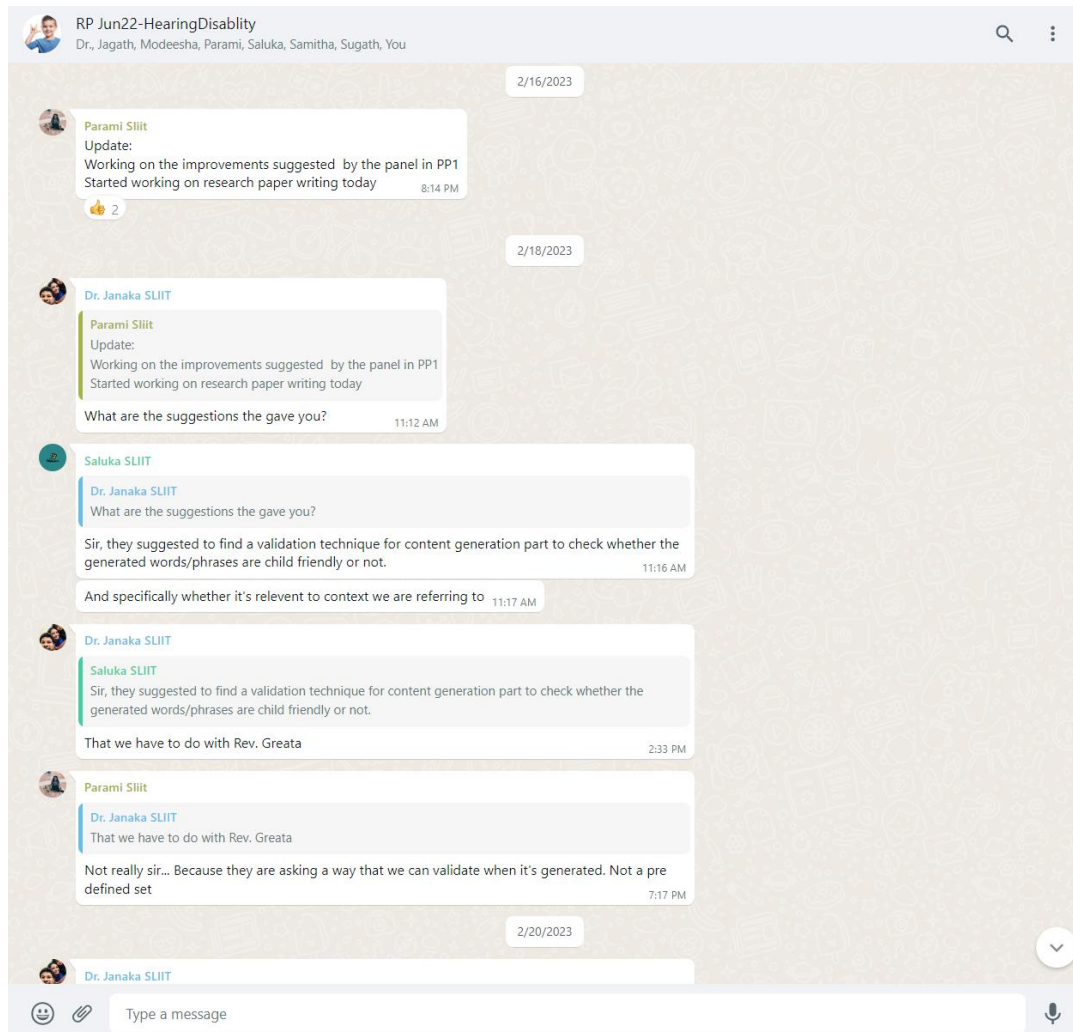
### 03. Screenshots from whatsapp

Whats app chat was created with including all the group members and the supervisors

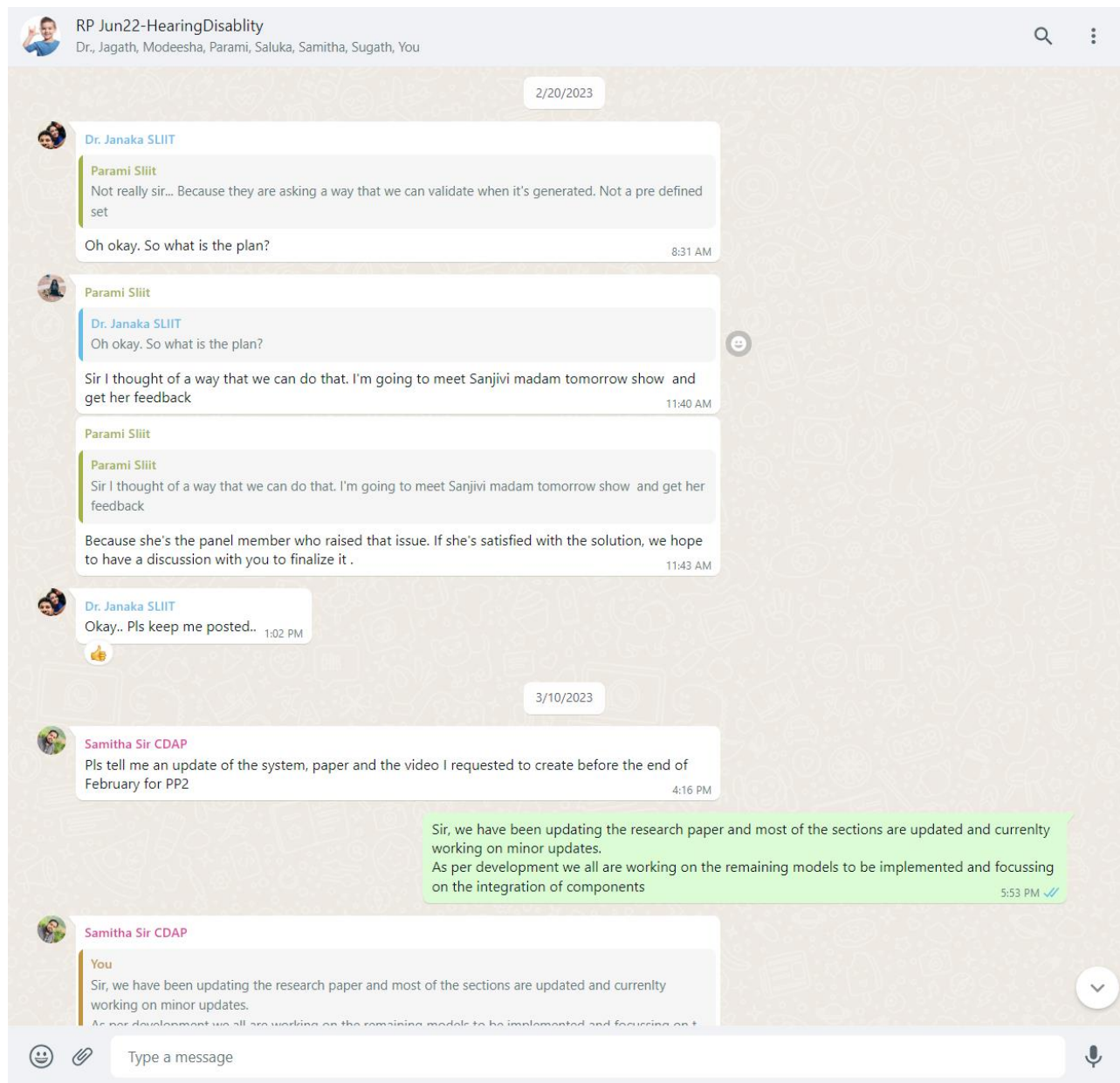




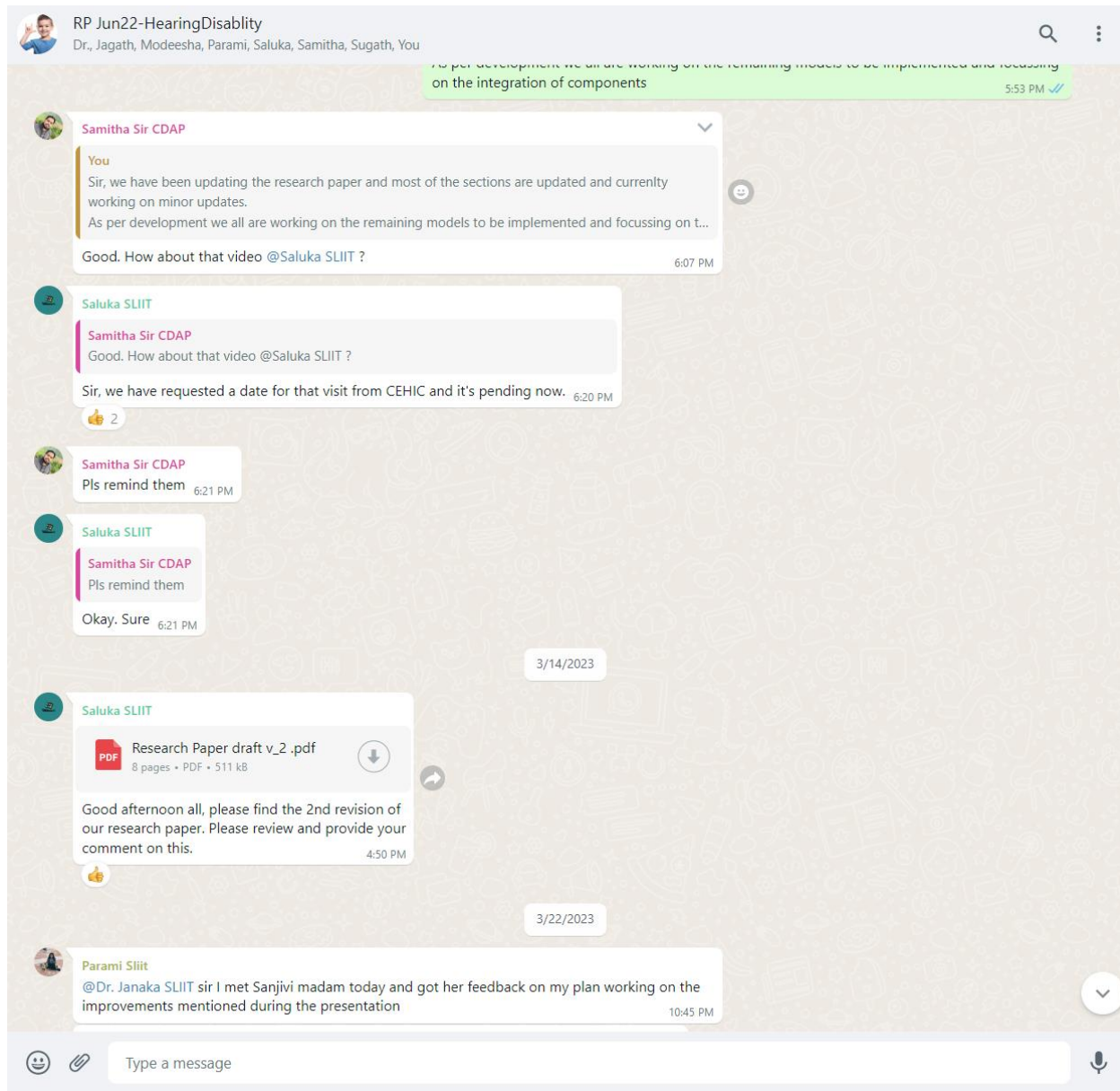




Getting feedback from supervisor after PP1




Providing updates to supervisor





Getting the feedback from supervisor to the research paper






RP Jun22-HearingDisablity  
Dr., Jagath, Modeesha, Parami, Saluka, Samitha, Sugath, You


3/22/2023




Parami Sliit  
@Dr. Janaka SLIIT sir I met Sanjivi madam today and got her feedback on my plan working on the improvements mentioned during the presentation  
10:45 PM

She pointed out some more improvements. Overall she was satisfied with the solution  
10:46 PM


3/23/2023




Dr. Janaka SLIIT  
Very good. Pls continue the work.  
  
Regarding your marks,  
Your proposal report and the status doc are below average because I did not submit the marks. I will submit those.  
6:51 AM




Parami Sliit  
Dr. Janaka SLIIT  
Very good. Pls continue the work.  
  
Regarding your marks, ...  
  
Understood sir  
9:35 AM



Saluka SLIIT  
Saluka SLIIT  
Good afternoon all, please find the 2nd revision of our research paper. Please review and provide your comment on this.  
  
@Dr. Janaka SLIIT sir, can we have your feedback for any improvements on this paper.  
1:02 PM






Dr. Janaka SLIIT  
I will check on that putha. 1:03 PM  
  
Super busy these days. 1:04 PM




Saluka SLIIT  
Dr. Janaka SLIIT  
I will check on that putha.  
  
Okay sir  
1:04 PM

3/27/2023










**RP Jun22-HearingDisablity**  
Dr., Jagath, Modeesha, Parami, Saluka, Samitha, Sugath, You

3/27/2023




**Samitha Sir CDAP**  
Your PP2 will be starting from 4th April - 7th April. Prepare for that 11:06 AM

👍 2



**Saluka SLIIT**  
**Samitha Sir CDAP**  
Your PP2 will be starting from 4th April - 7th April. Prepare for that  
Thank you for the reminder, sir 11:15 AM

4/7/2023



**Saluka SLIIT**  
@Dr. Janaka SLIIT Sir, can you please mention your updated email address that we can use for the research paper? 7:12 PM


@Jagath Sir SLIIT Sir, can we use this email address(jagath.w@slit.lk) under your name? 7:19 PM

🔄 Forwarded  
[https://iciis.org/?page\\_id=19091](https://iciis.org/?page_id=19091) 10:00 PM

IEEE 17th International Conference on Industrial and Information Systems 10:00 PM


Can we submit our paper for this conference? 10:00 PM

4/8/2023



**Dr. Janaka SLIIT**  
janaka.wijekoon@gmail.com 5:34 AM

**Dr. Janaka SLIIT**  
**Saluka SLIIT**  
Can we submit our paper for this conference?  
Very good conference. 5:35 AM




**Saluka SLIIT**  
**Dr. Janaka SLIIT**  
janaka.wijekoon@gmail.com  
Thank you sir 11:13 AM

Type a message

RP Jun22-HearingDisability  
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Samitha Sir CDAP



23<sup>rd</sup> ICTer International Conference

ICTer International Conference is the successor to the seminal International Information Technology Conference (ITC) held in Sri Lanka since 1988. The ITC conference is a unique opportunity for researchers and practitioners alike to present research results and practical experience in the computer science and information technology domains. All papers accepted to be presented at the conference will be published in either the Journal of the National Science Foundation (JNSF) or the ICTer Journal (Journal.icter.org).

**Important Dates:**

- 27<sup>th</sup> May 2023: Paper Submission Deadline
- 28<sup>th</sup> July 2023: Notification for Authors
- 28<sup>th</sup> October 2023: Camera Ready Copy Submission

**07<sup>th</sup> - 10<sup>th</sup> November 2023**  
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High-quality papers accepted for presentation at the ICTer conference are potentially eligible for publication in a special issue of the Journal of the National Science Foundation (JNSF).

**Call for Papers:**  
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Address: ICTer 2023, School of Computing, No. 75, De Silva Avenue, Colombo 07, Sri Lanka.

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Dr. Janaka SLIIT

Samitha Sir CDAP

Photo

Yeah submit to this too 3:31 PM

Saluka SLIIT

@Dr. Janaka SLIIT Before final marking(as we know it's May 16th) we should have the proof that our paper is published. 5:21 PM

Saluka SLIIT

Saluka SLIIT

@Dr. Janaka SLIIT Before final marking(as we know it's May 16th) we should have the proof that our paper is published.

Can you please mention few other recent conferences which we can submit our paper? 5:21 PM

Dr. Janaka SLIIT

IECON 7:31 PM

Saluka SLIIT

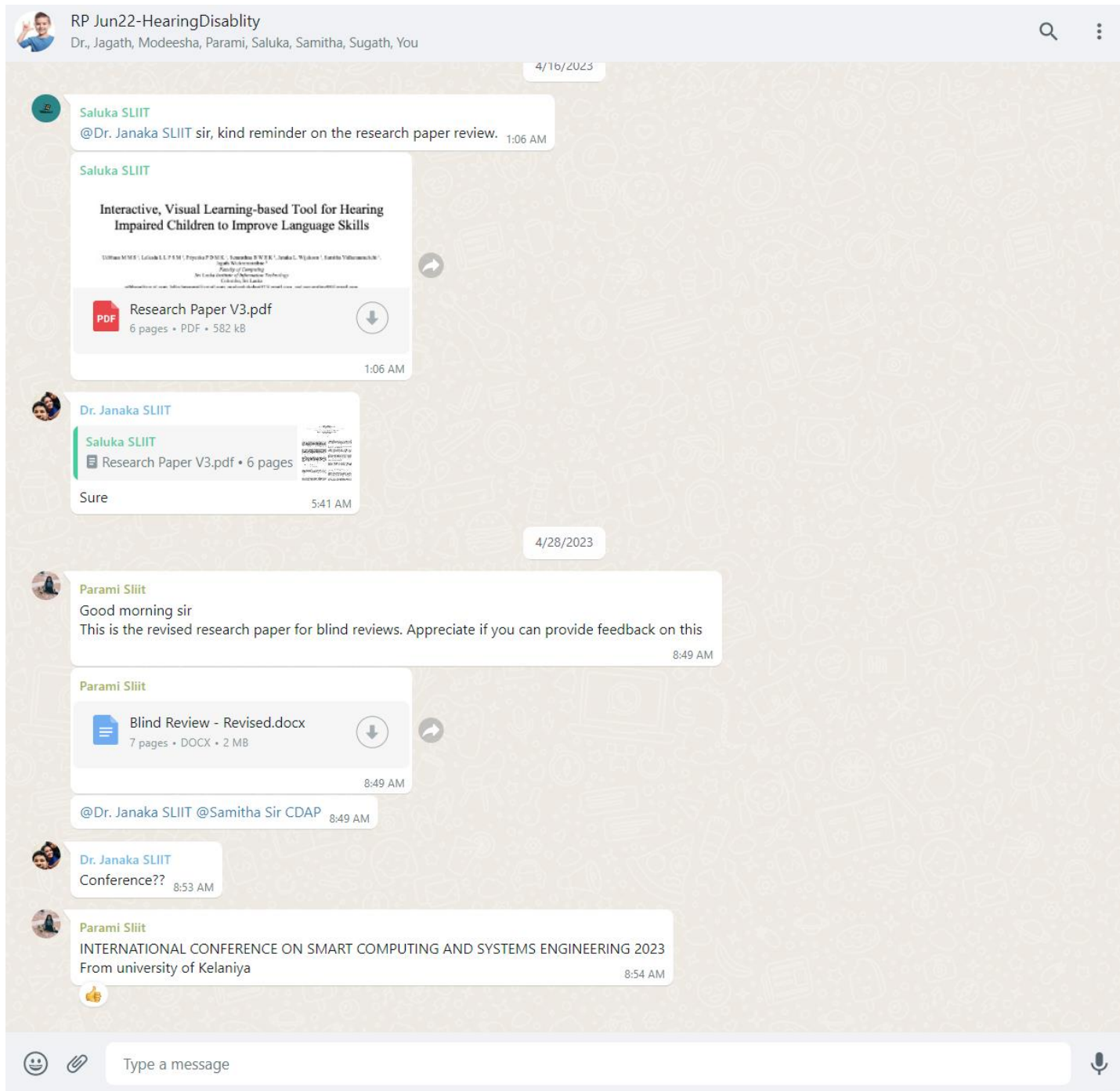
Dr. Janaka SLIIT

IECON

Type a message

Having discussions about conferenced with the supervisor

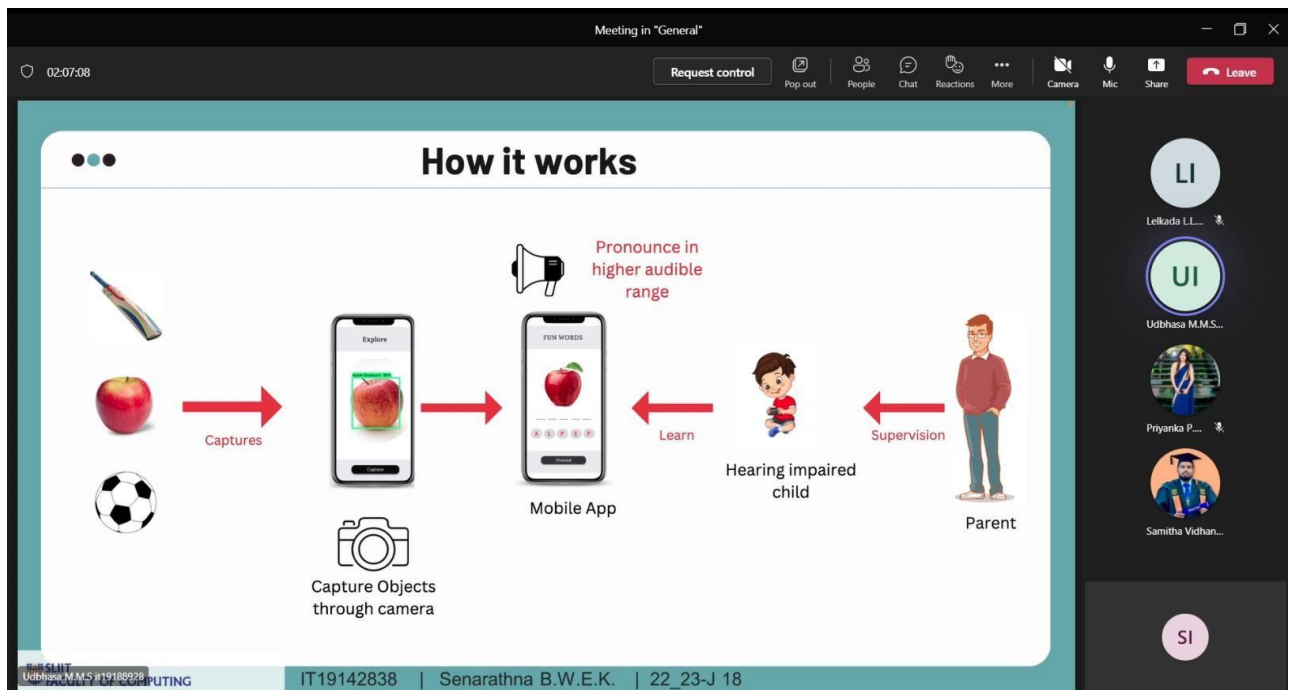




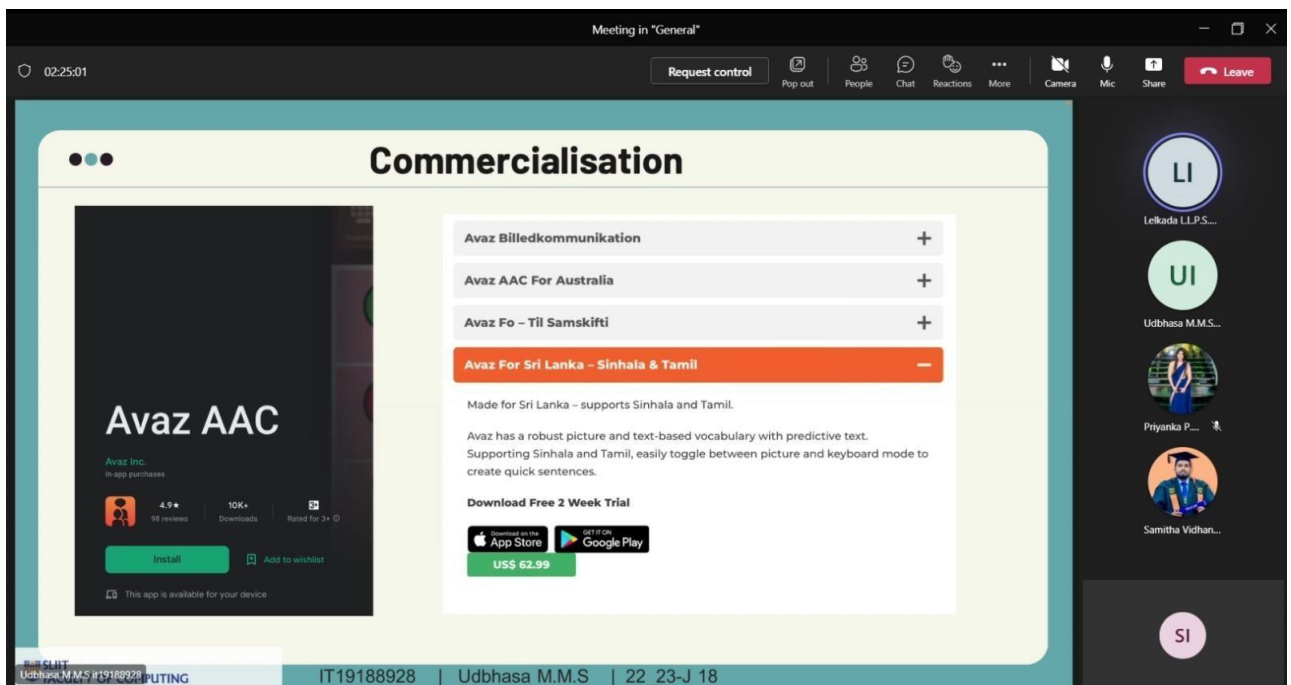
Whatsapp call screenshots

## Screenshots of the calls in MS Teams

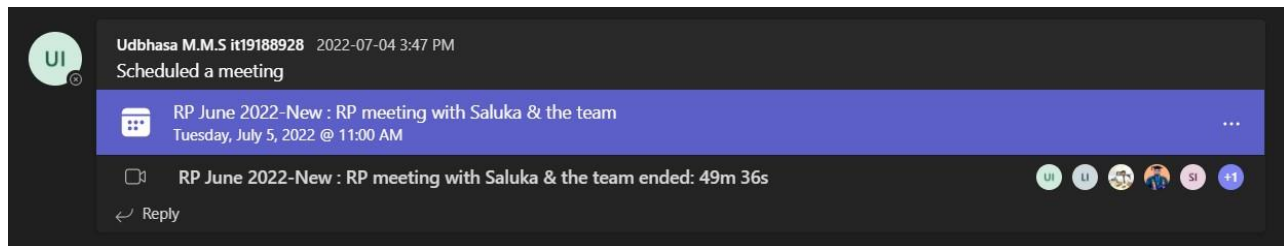




Meeting with the Co-supervisor



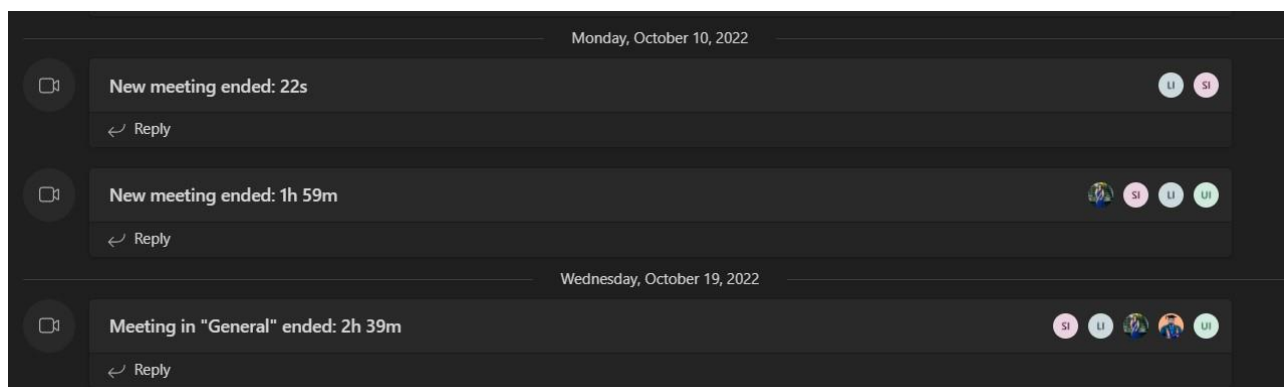
Meeting with co-supervisor 2



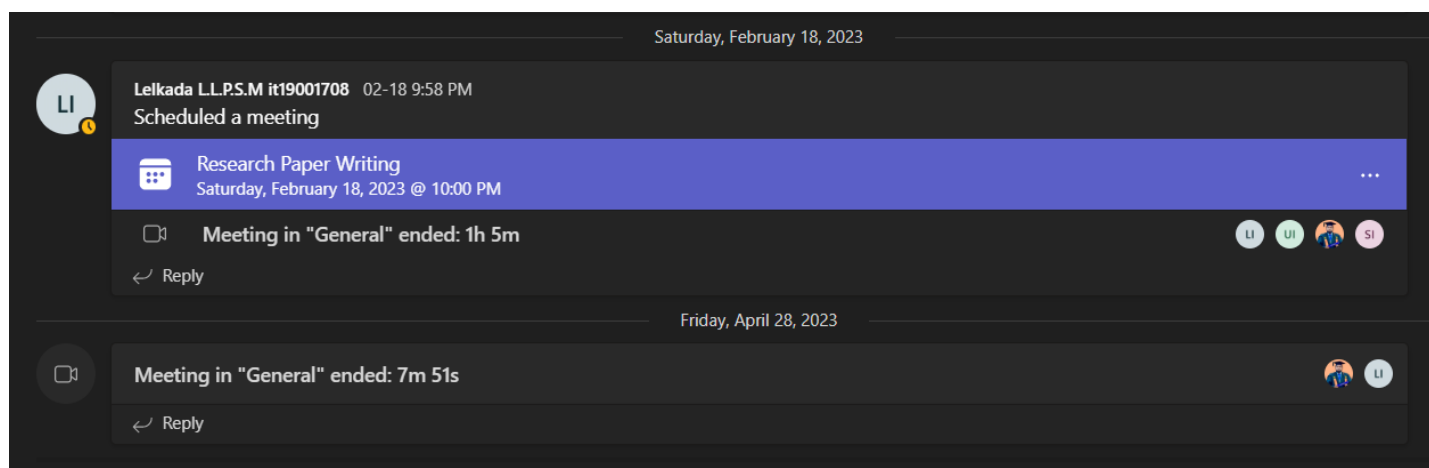
Meeting with the Supervisor



Meeting taken before field visits



Teams calls

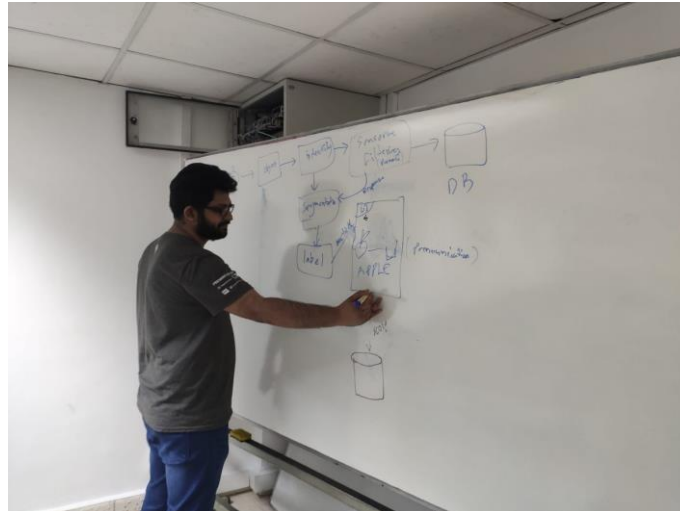


Research paper Discussion with the Supervisor

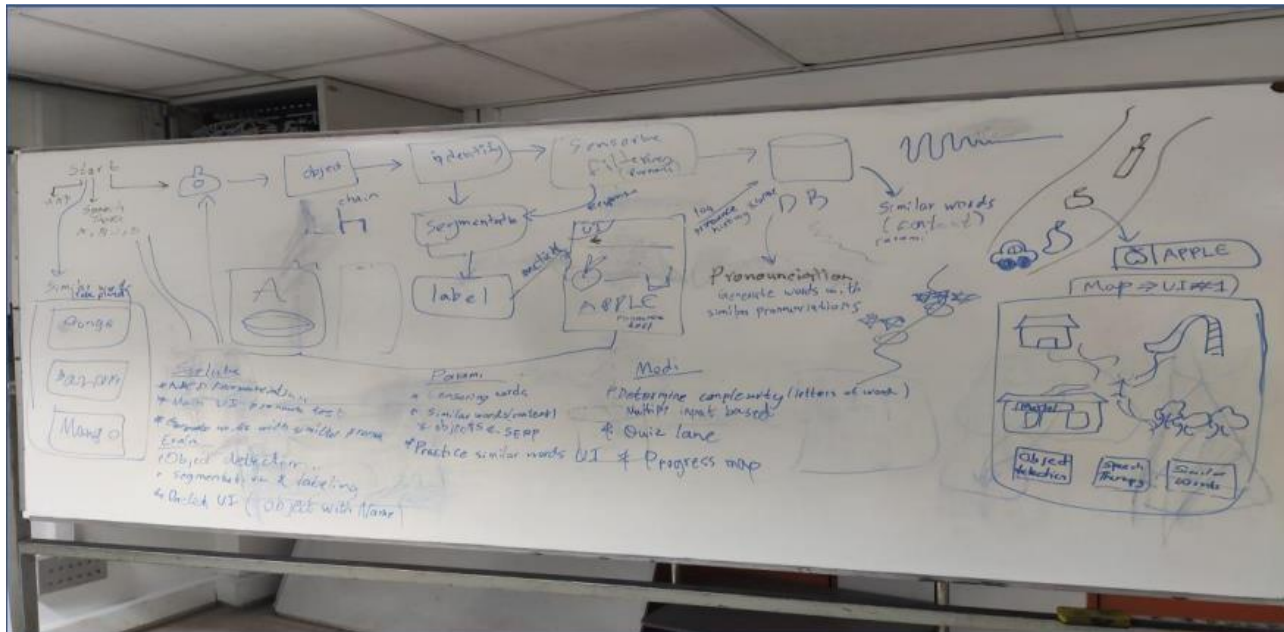
#### 04. Physical Meeting



Meeting with the Supervisor



Meeting to Plan the integration points of the application.



Brain storming diagram

## 05. Task Outputs

Oneshot learning was done to do classification and following are the results of it

```
[ ] val_accs, train_accs, nn_accs = [], [], []
for N in ways:
    val_accs.append(test_oneshot(model, N, trials, "val", verbose=True))
    train_accs.append(test_oneshot(model, N, trials, "train", verbose=True))
    nn_acc = test_nn_accuracy(N, trials)
    nn_accs.append(nn_acc)
    print ("NN Accuracy = ", nn_acc)
    print("-----")

Evaluating model on 2 random 1 way one-shot learning tasks ...

1/1 [=====] - 0s 17ms/step
1/1 [=====] - 0s 17ms/step
Got an average of 100.0% 1 way one-shot learning accuracy

Evaluating model on 2 random 1 way one-shot learning tasks ...

1/1 [=====] - 0s 17ms/step
1/1 [=====] - 0s 16ms/step
Got an average of 100.0% 1 way one-shot learning accuracy

Evaluating nearest neighbour on 2 unique 1 way one-shot learning tasks ...
NN Accuracy = 100.0

/usr/local/lib/python3.8/dist-packages/numpy/core/fromnumeric.py:86: RuntimeWarning: overflow encountered in reduce
return ufunc.reduce(obj, axis, dtype, out, **passkwargs)
```

```
[ ] Starting training process:
-----

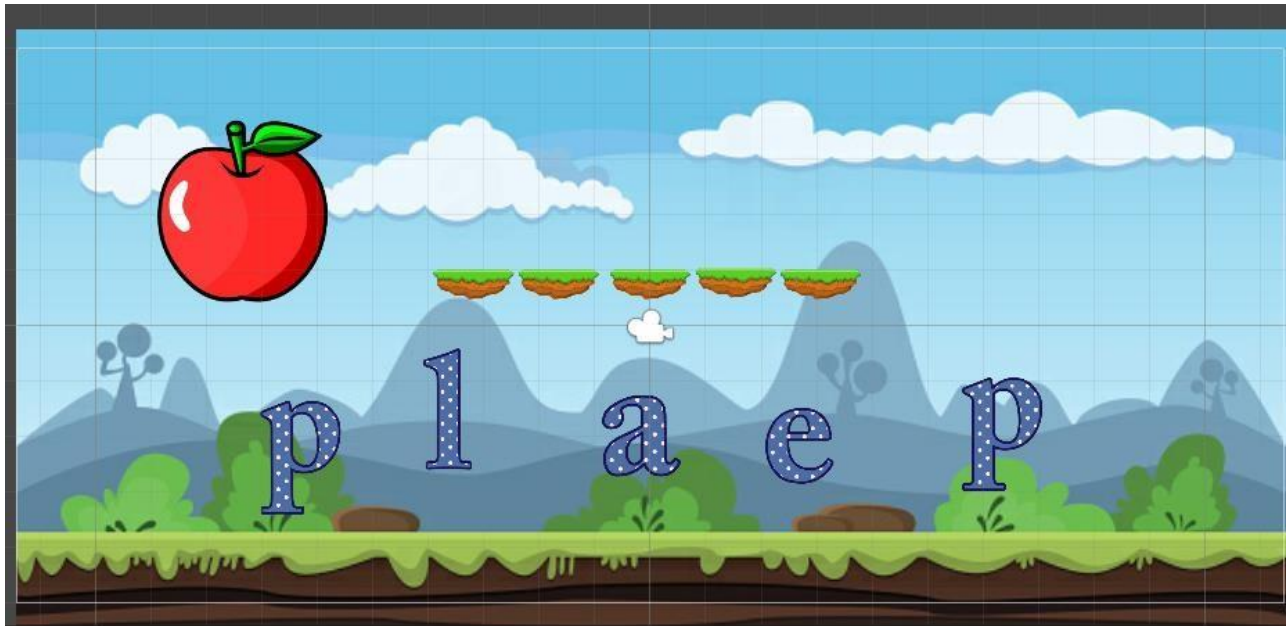
-----

Time for 20 iterations: 0.7627347628275554 mins
Train Loss: 4.250063419342041
Evaluating model on 10 random 2 way one-shot learning tasks ...

true_category: 2
ex1, ex 3 0
1/1 [=====] - 0s 398ms/step
probs: [[0.5925619]
        [0.5961007]]
true_category: 1
ex1, ex 7 11
1/1 [=====] - 0s 231ms/step
probs: [[0.60056937]
        [0.60042566]]
true_category: 1
ex1, ex 19 14
1/1 [=====] - 0s 268ms/step
probs: [[0.4509704]
        [0.5595607]]
true_category: 0
ex1, ex 3 5
1/1 [=====] - 0s 239ms/step
probs: [[0.54566723]
        [0.5774071 ]]
true_category: 1
ex1, ex 19 18
1/1 [=====] - 0s 237ms/step
probs: [[0.52583325]
        [0.5356785 ]]
true_category: 2
ex1, ex 14 8
1/1 [=====] - 0s 259ms/step
probs: [[0.56610173]
        [0.55551946]]
true_category: 0
ex1, ex 4 3
1/1 [=====] - 0s 228ms/step
probs: [[0.5636464 ]
```

One shot learning results on complex image backgrounds

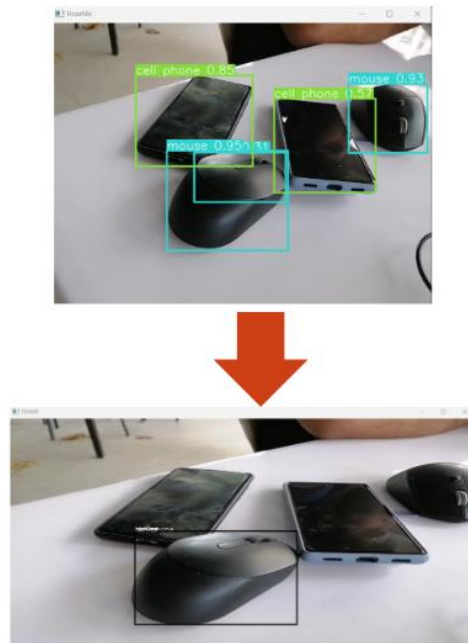




Game UI images



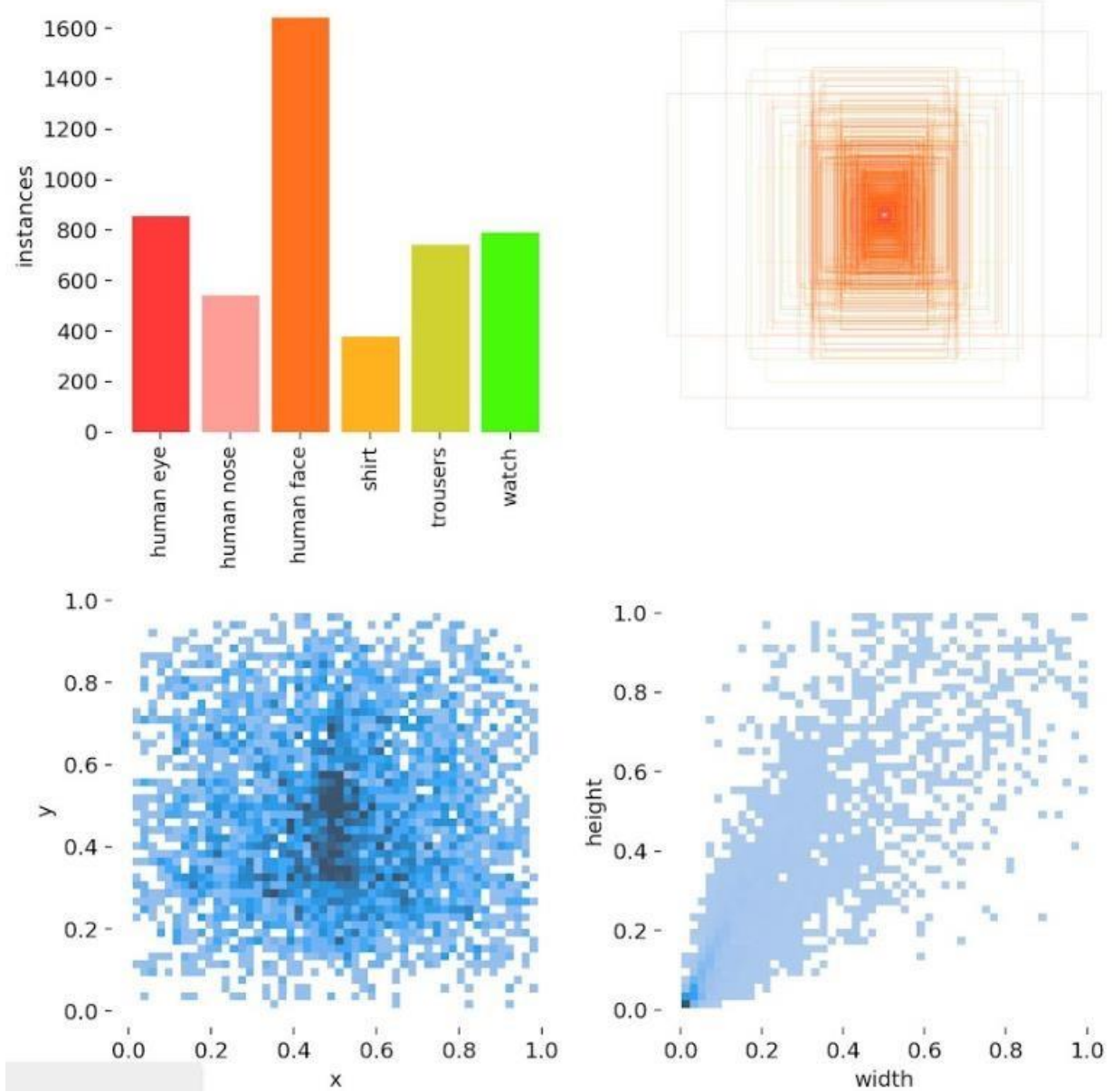
Game UI images previous design on Unity



Object detection reducing complexity results

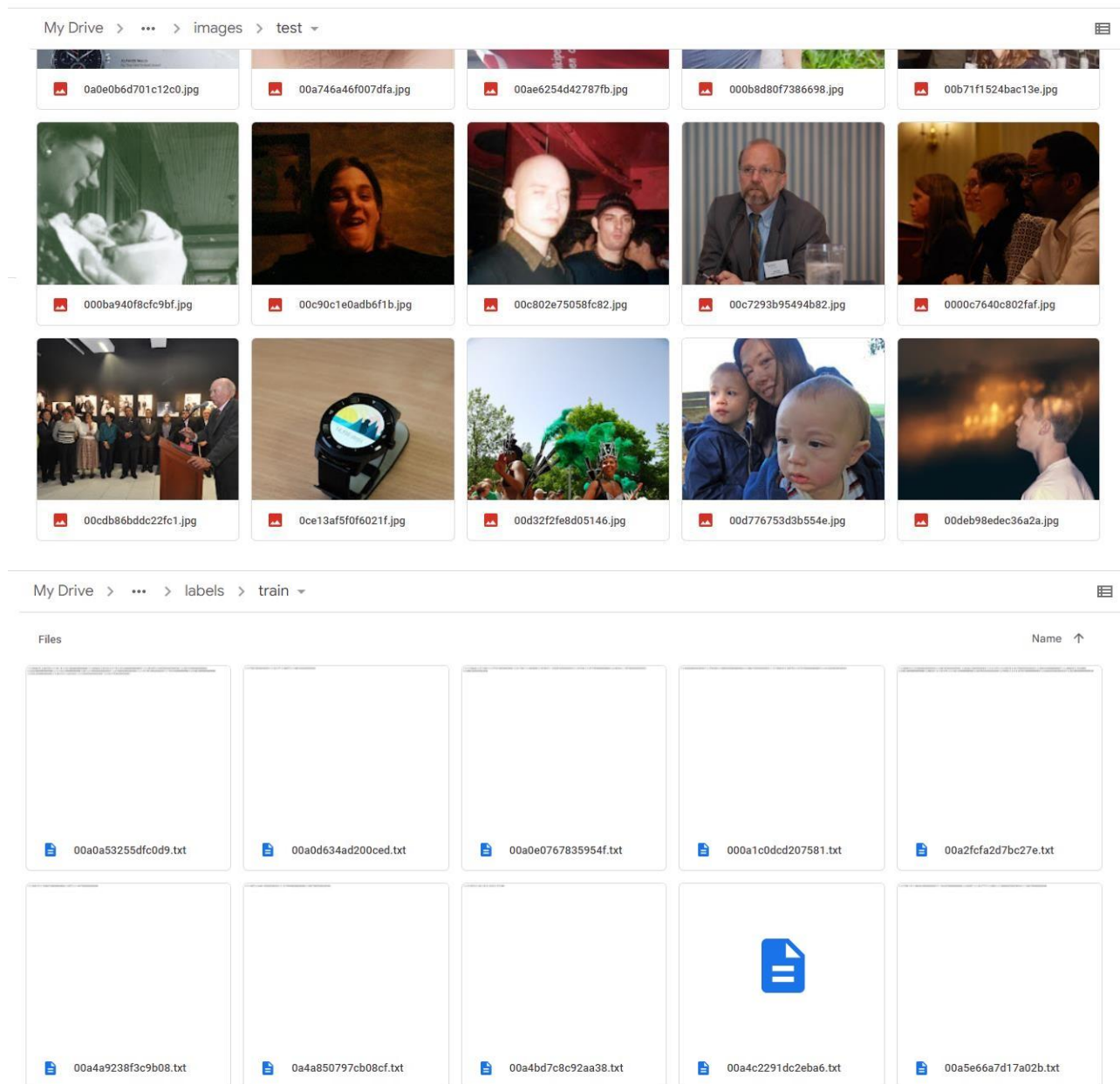


The drag and drop User interface customized to mobile device.



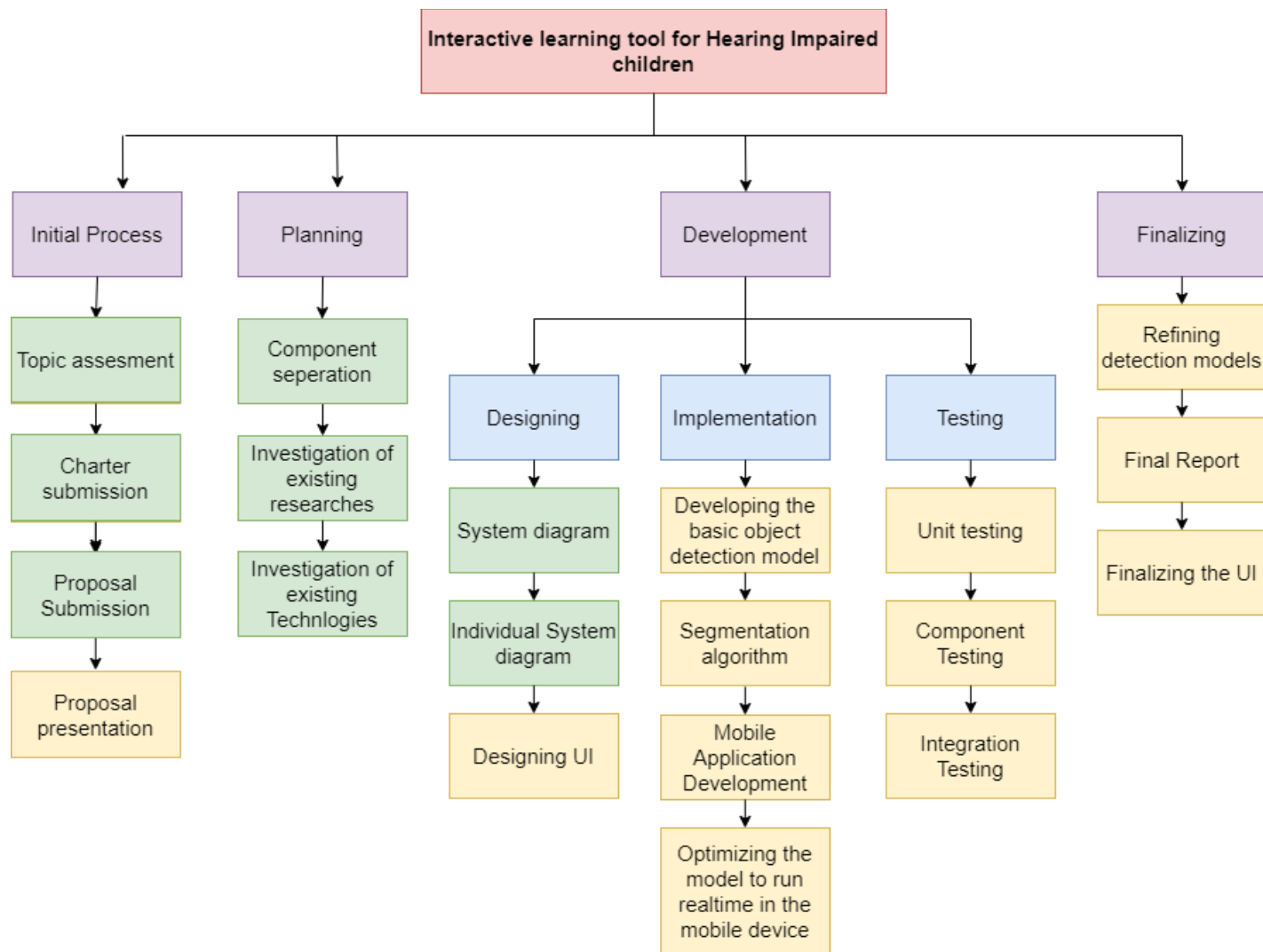
Generated charts





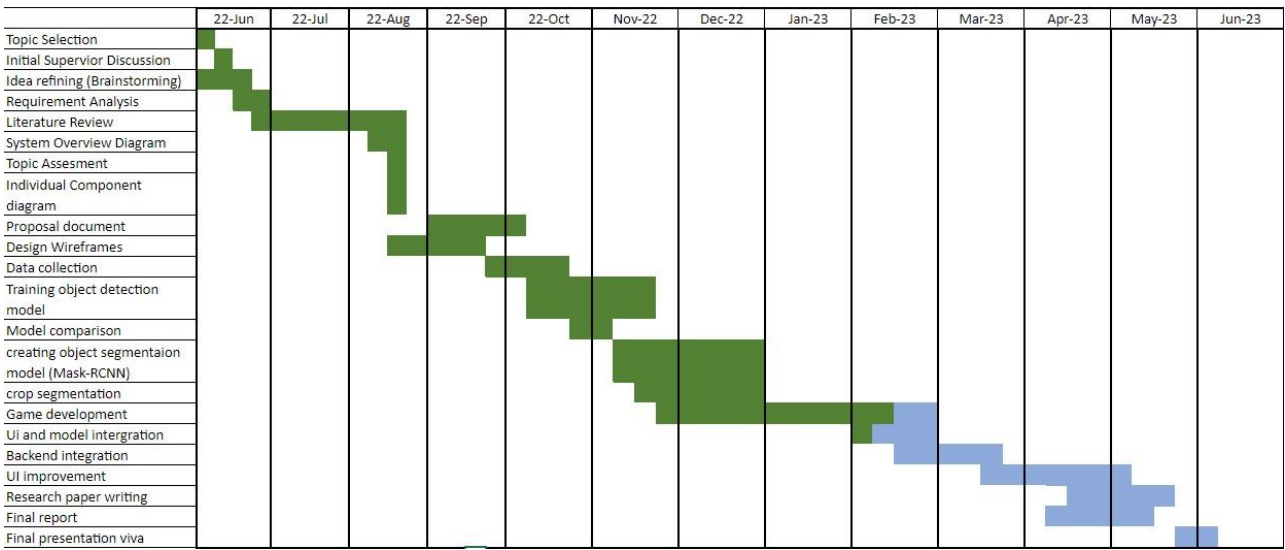
Sample datasets used for training

06. Work breakdown structure & allocates resources for each areas.



Work breakdown chart

## 07.Gannt Chart

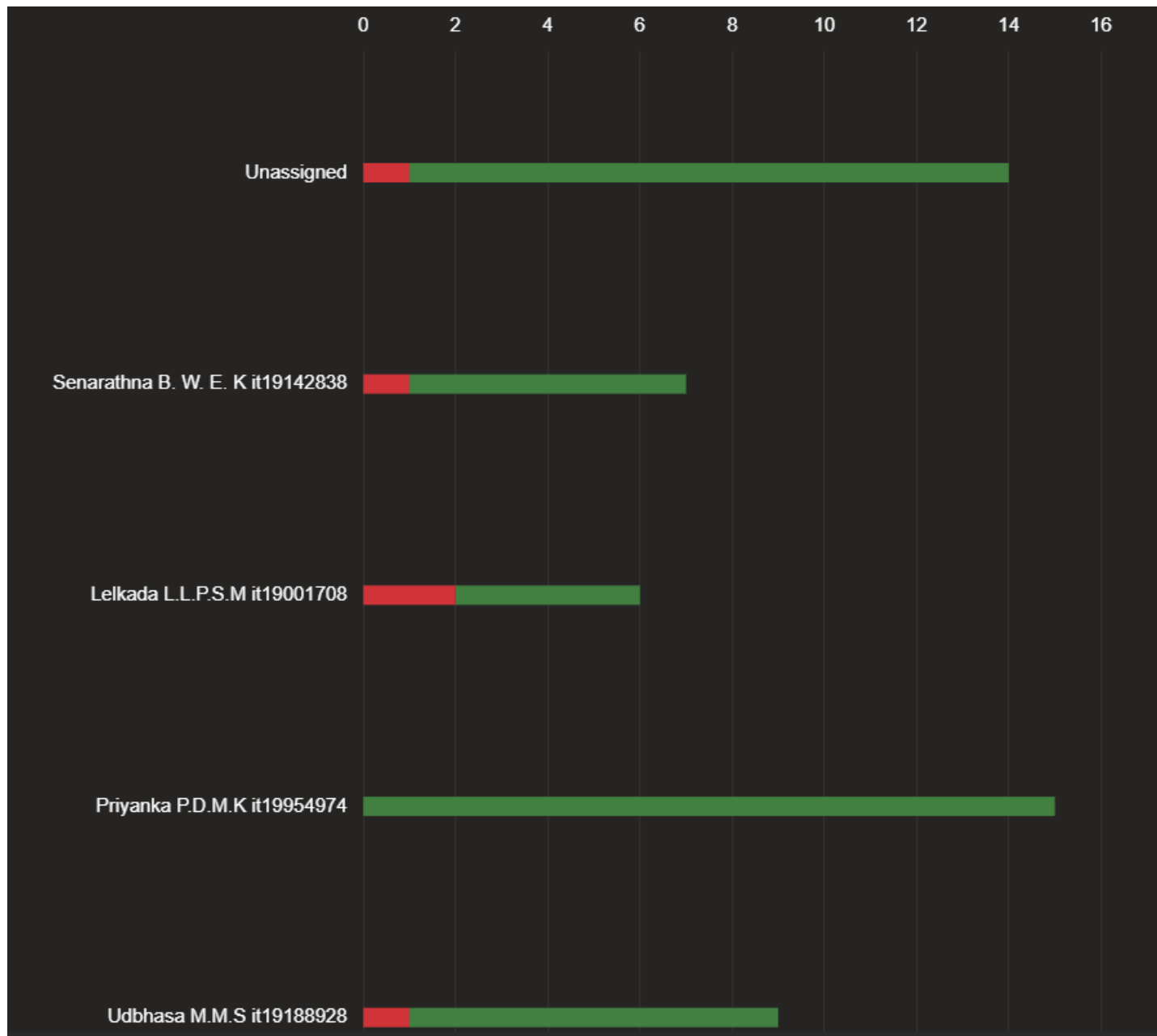


Gannt chart

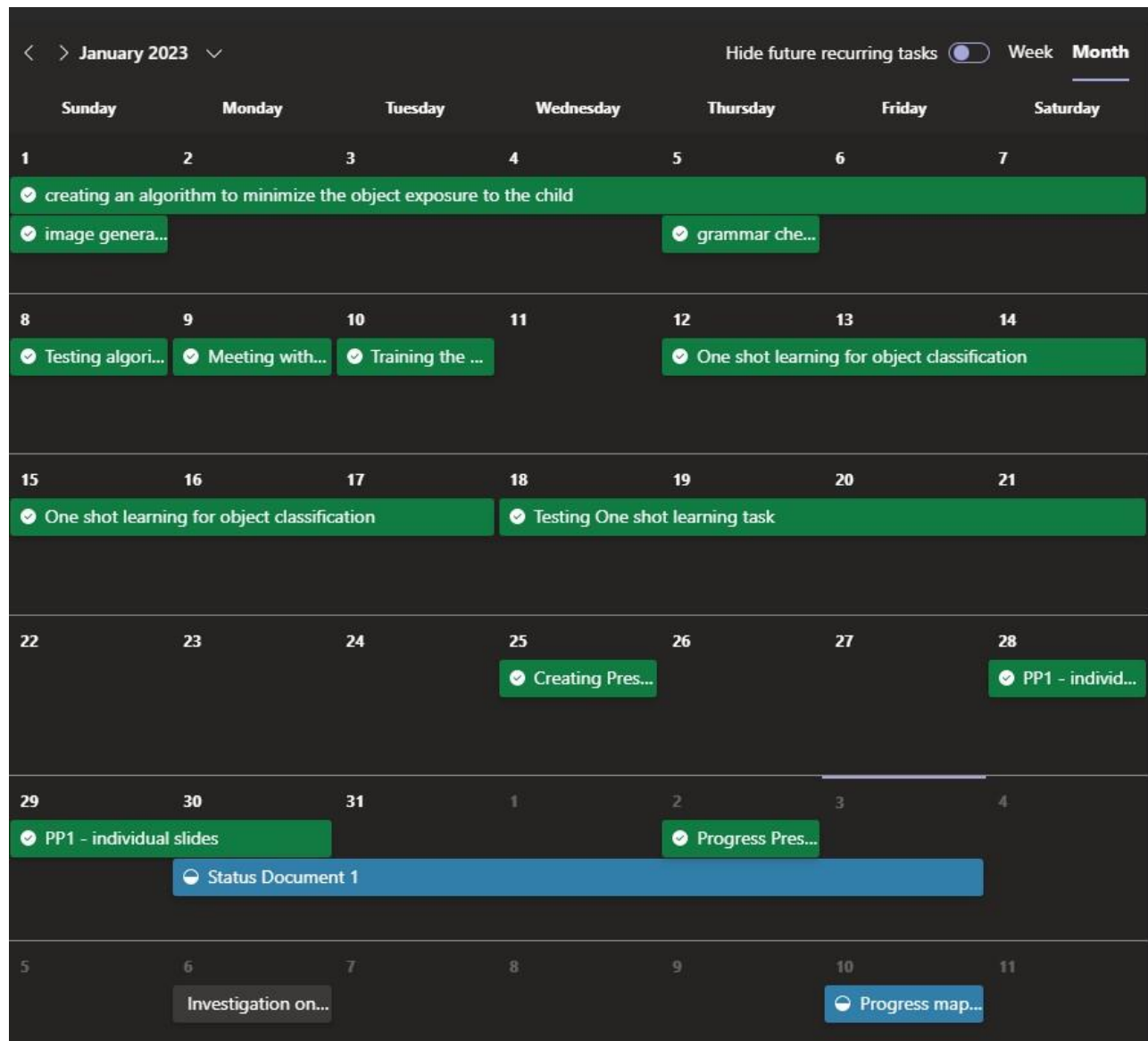
## 07. Teams Planner Charts



Task planner charts



Individual task distribution







Monthly work on task planner

< > April 2023 ▾ <span>Hide future recurring tasks <input type="checkbox"/></span> <span>Week <b>Month</b></span>						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
26	27	28	29	30	31	1
<div>✓ Investigate the integration ...</div>						
2	3	4	5	6	7	8
9	10	11	12	13	14	15
<div>✓ Investigati...</div>						
16	17	18	19	20	21	22
<div>🗓 Final Report writing</div>						
23	24	25	26	27	28	29
<div>🗓 Final Report writing</div>						
30	1	2	3	4	5	6
<div>🗓 Final Report writing</div>						

Monthly work on task planner


2

**22\_23-J 18**



 Star 0
  Fork 0

39 Commits
 2 Branches
 0 Tags
 23.1 MB Files































master
 22\_23-j-18 / +
 History Find file Web IDE Clone


**adding detection models**
 Esala Senarathna authored 1 day ago
 47db272d

README
 Auto DevOps enabled
 Add LICENSE
 Add CHANGELOG
 Add CONTRIBUTING
 Add Kubernetes cluster

Name	Last commit	Last update
IT19001708	text similarity calculation model added	2 days ago
IT19142838	adding detection models	1 day ago
IT19188928	lip detetct	2 days ago
IT19954974	member folders added	1 month ago
.DS_Store	Daily changes	1 week ago
README.md	Update README.md	3 months ago
core.369	data clean script added	3 days ago

## Gitlab repository

18 Apr, 2023 1 commit		
	<b>object detection app</b> Senarathna B W E K authored 3 weeks ago	f651dd48  
02 Apr, 2023 1 commit		
	<b>fixing the camera</b> Senarathna B W E K authored 1 month ago	c72a395f  
26 Mar, 2023 3 commits		
	<b>home screen card changes</b> Lelkada L L P S M authored 1 month ago	1465f1ae  
	<b>home screen card changes</b> Lelkada L L P S M authored 1 month ago	fa870528  
	<b>app login and home screen</b> Lelkada L L P S M authored 1 month ago	a6bc6f69  
25 Mar, 2023 1 commit		
	<b>new embedding script</b> Lelkada L L P S M authored 1 month ago	f924fad8  
24 Mar, 2023 1 commit		
	<b>code changes</b> Lelkada L L P S M authored 1 month ago	7f0d87e8  
19 Mar, 2023 1 commit		
	<b>path changes</b> Lelkada L L P S M authored 1 month ago	39dd25ff  
15 Mar, 2023 3 commits		
	<b>modifications in python script</b> Udbhasa M M S authored 1 month ago	aa89276d  
	<b>modifications in python script</b> Udbhasa M M S authored 1 month ago	b1c4a60f  

## Gitlab commit history



## 08. Field Visits



Visit to School of Deaf Rathmalana



### Initial Meeting the Executive board of CEHIC



Meeting Sister Greta Nalawaththa to get Learning Materials



Interactive sessions with teachers about teaching techniques



