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

2021 - 042

Status Document - 1
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Co- supervisor: Mr. Samitha Vidhanaarachchi

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

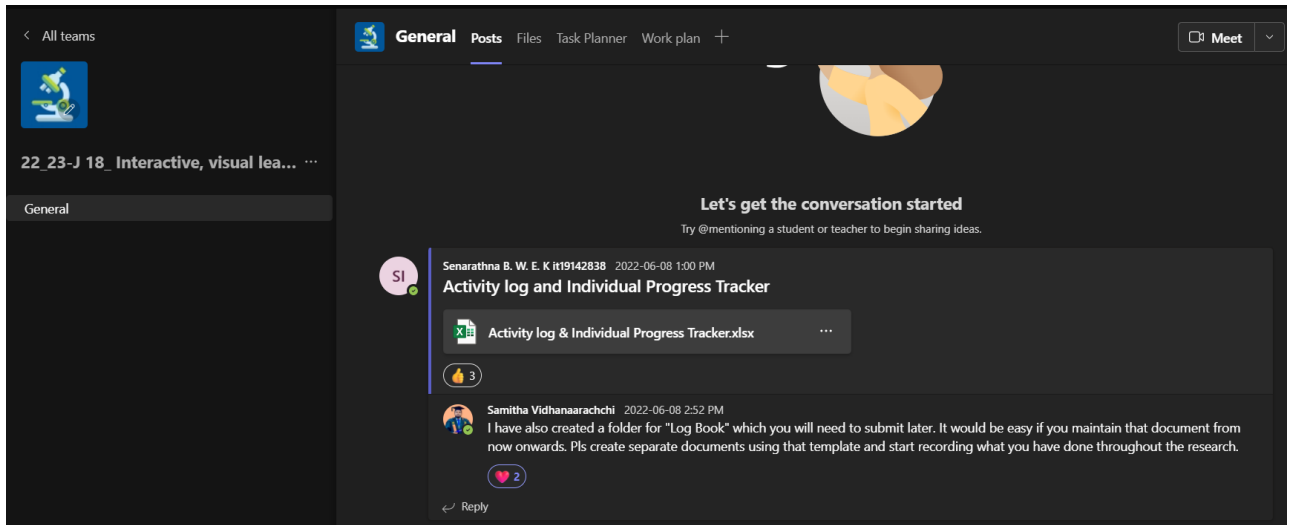**Department of Computer Science and Software Engineering**

Sri Lanka Institute of Information Technology Sri Lanka
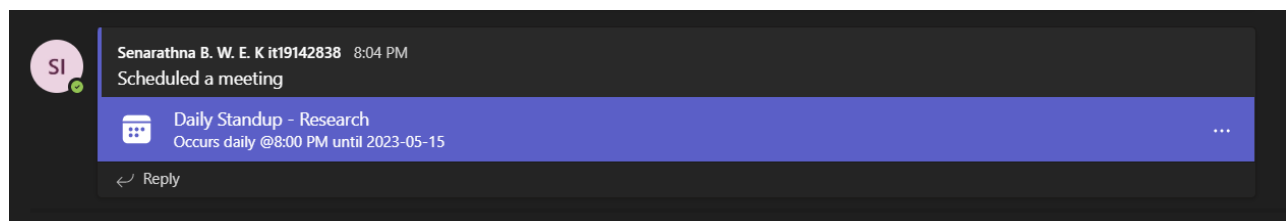
February 2023

Table of Contents

01. Screenshots of the chats in MS Teams

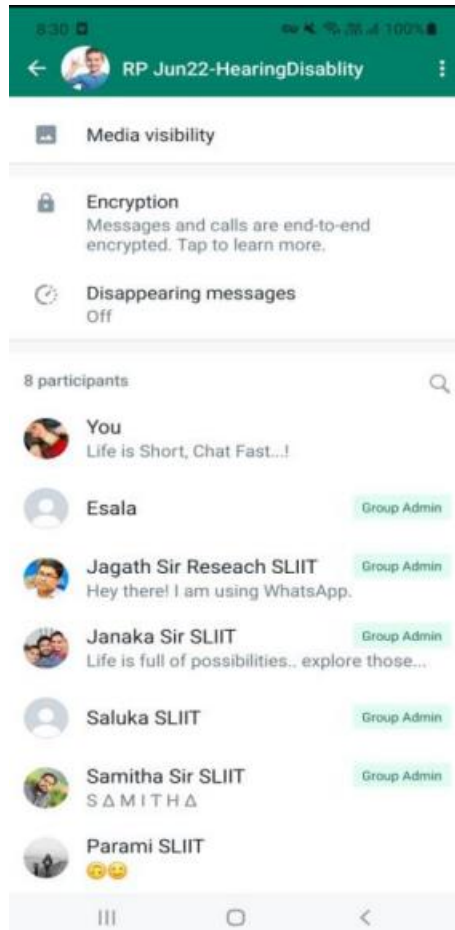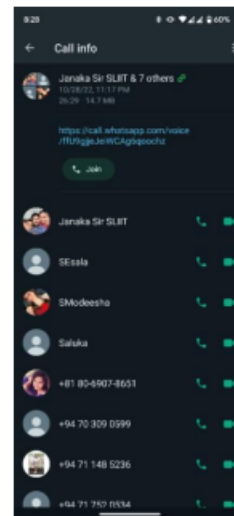Creating the Teams group and adding individual progress tracker

Daily standup meeting to track progress
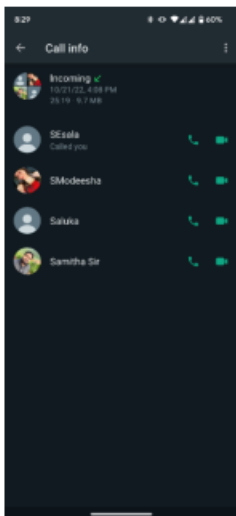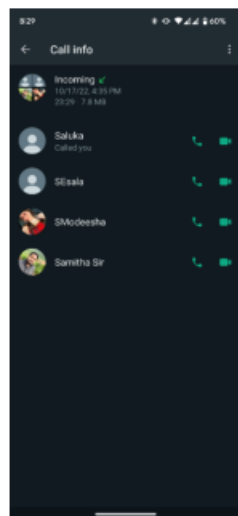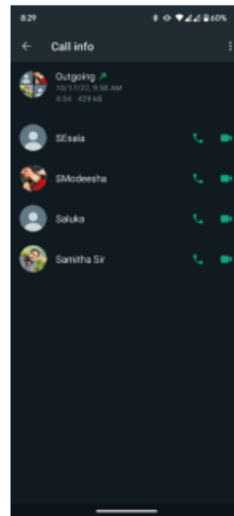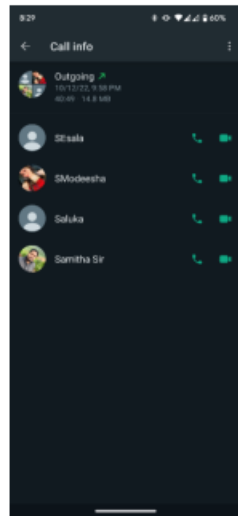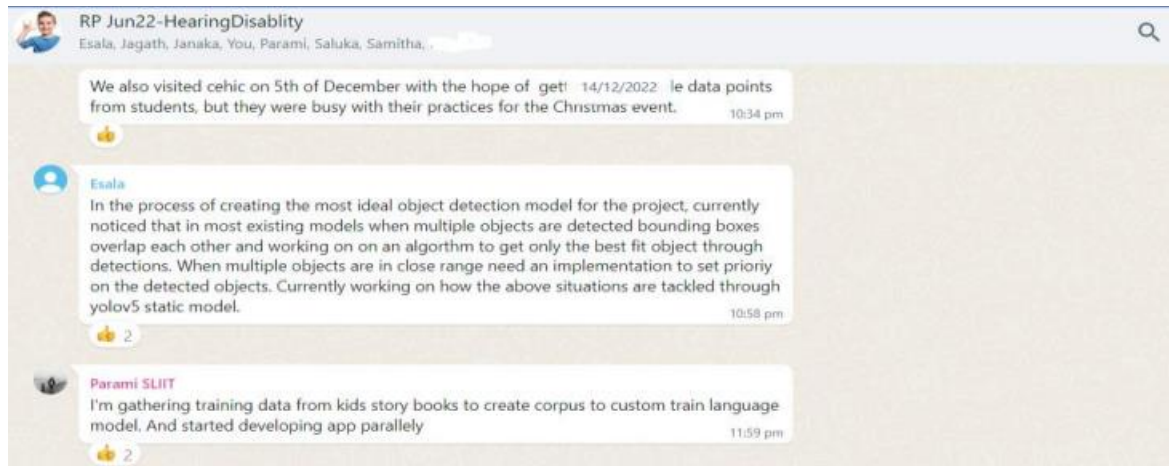
02. Whatsapp chats created

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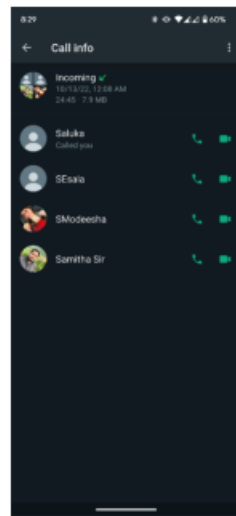
Whatsapp call screenshots

Screenshots of the calls in MS Teams
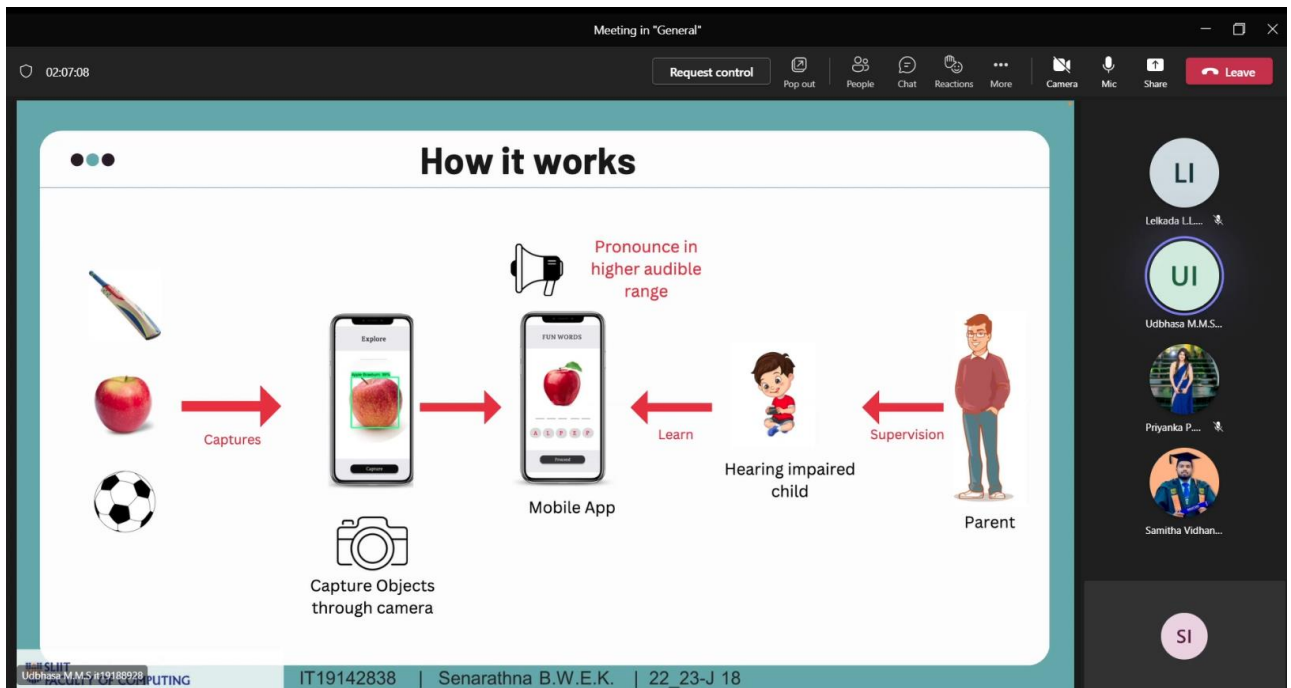
Meeting with the Co-supervisor
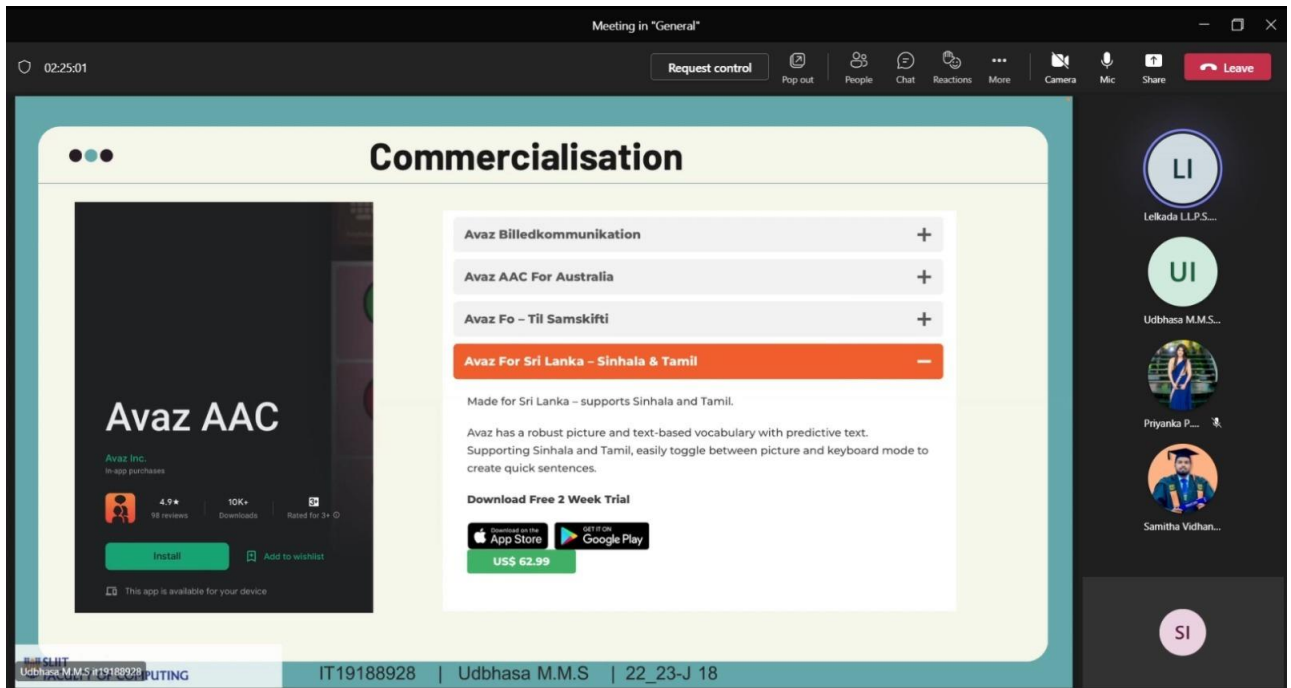
Meeting with co-supervisor 2
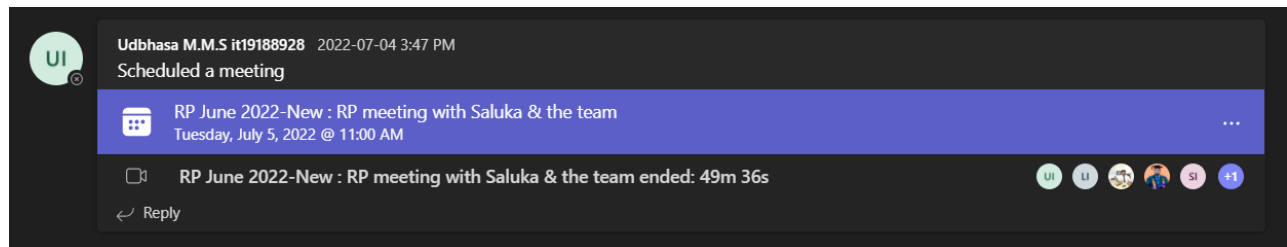
Meeting with the Supervisor

Meeting taken before field visits

Teams calls

03.   Physical Meeting

Meeting with the Supervisor

Meeting to Plan the integration points of the application.

Brain storming diagram

04. 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("-------------------------------------------------------|-----------------------------------------")
```
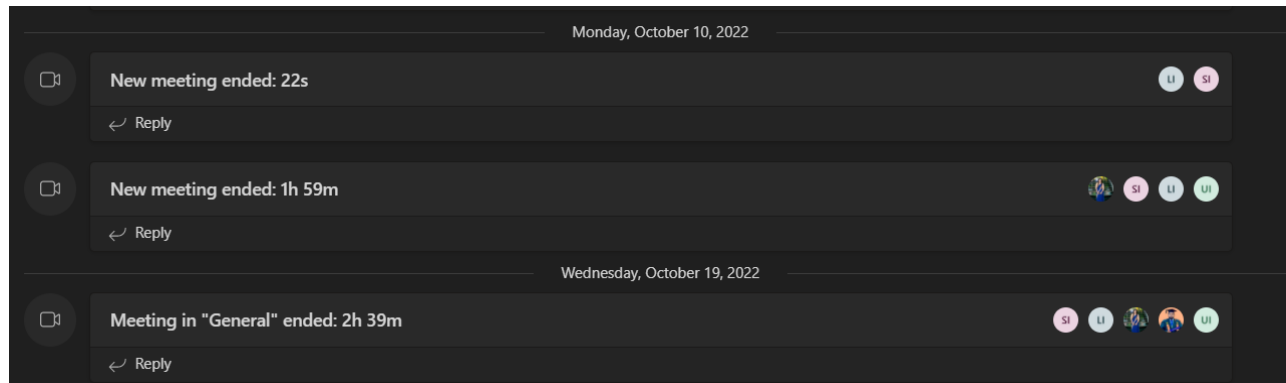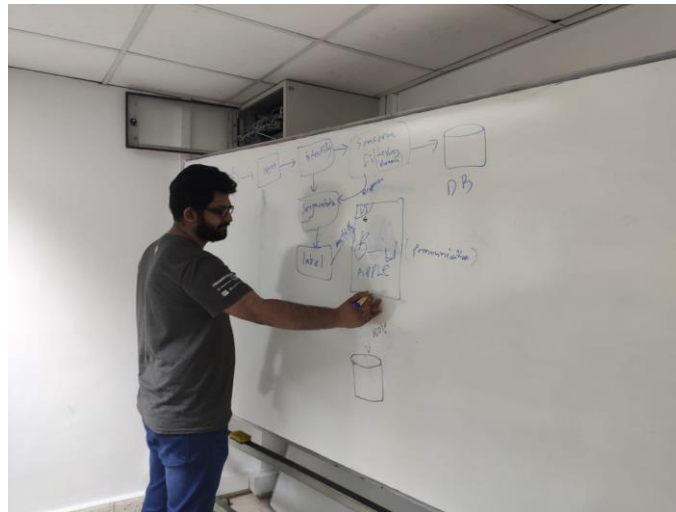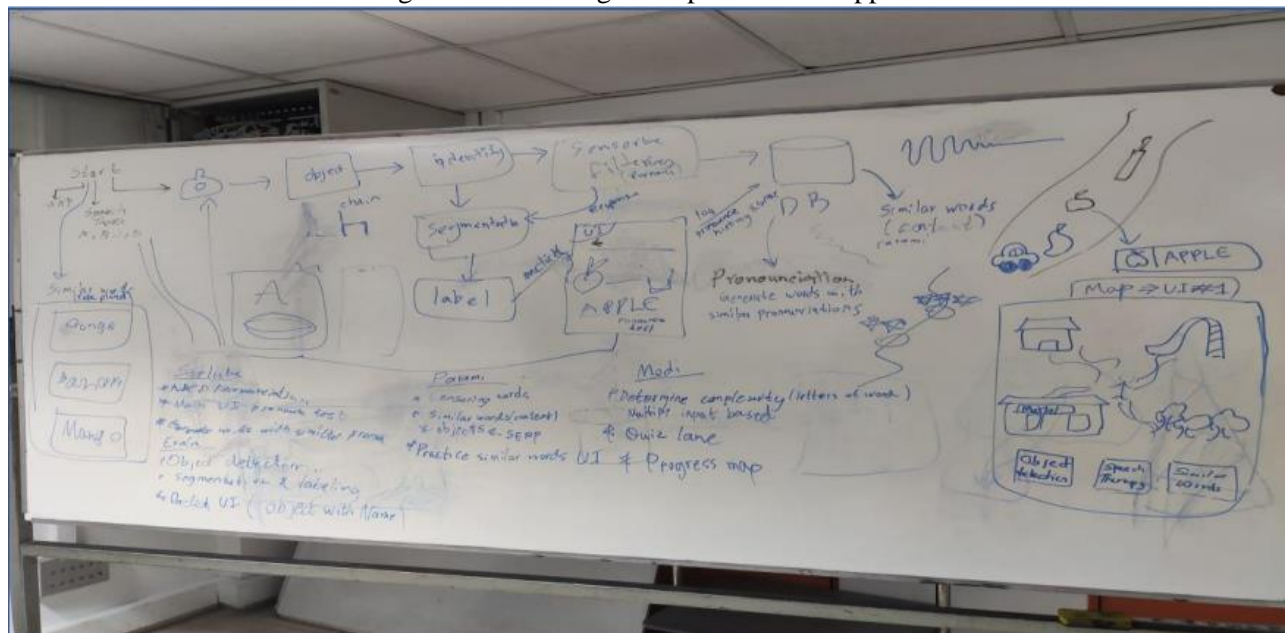
```
    Evaluating model on 2 random 1 way one-shot learning tasks ...

    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)
```

10

```
[ ]  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 ]
```
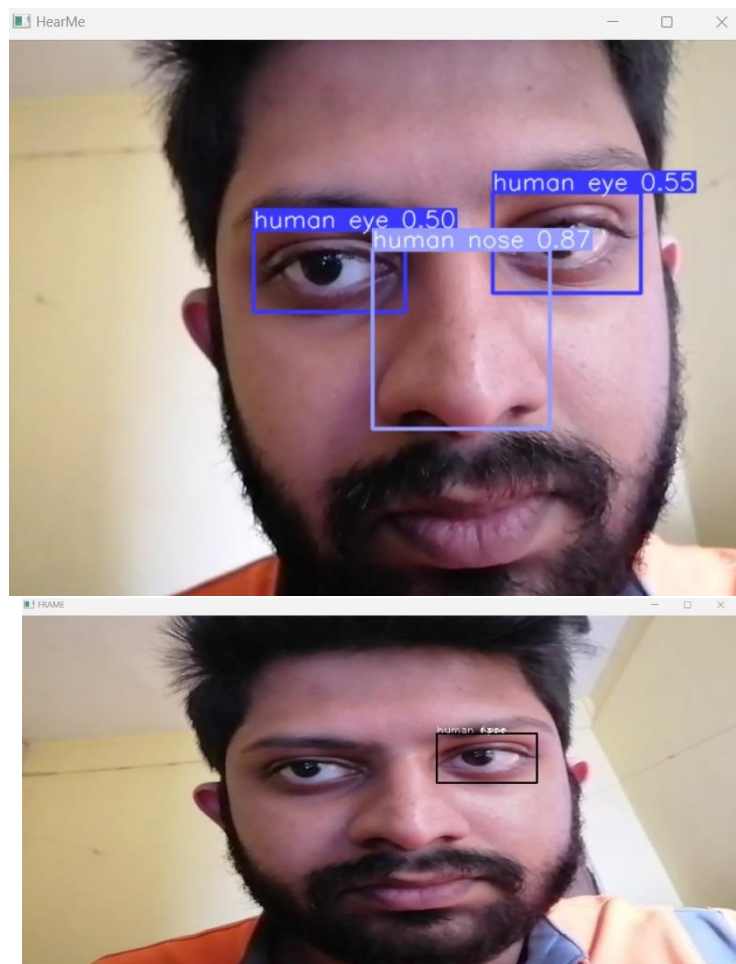
One shot learning results on complex image backgrounds
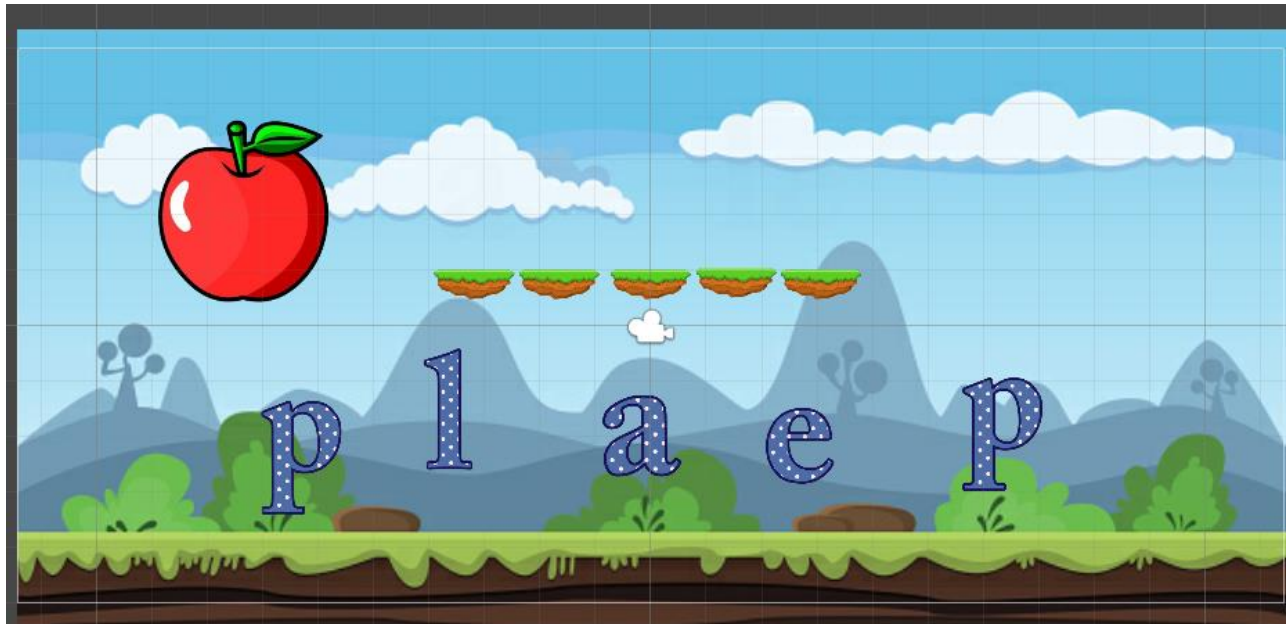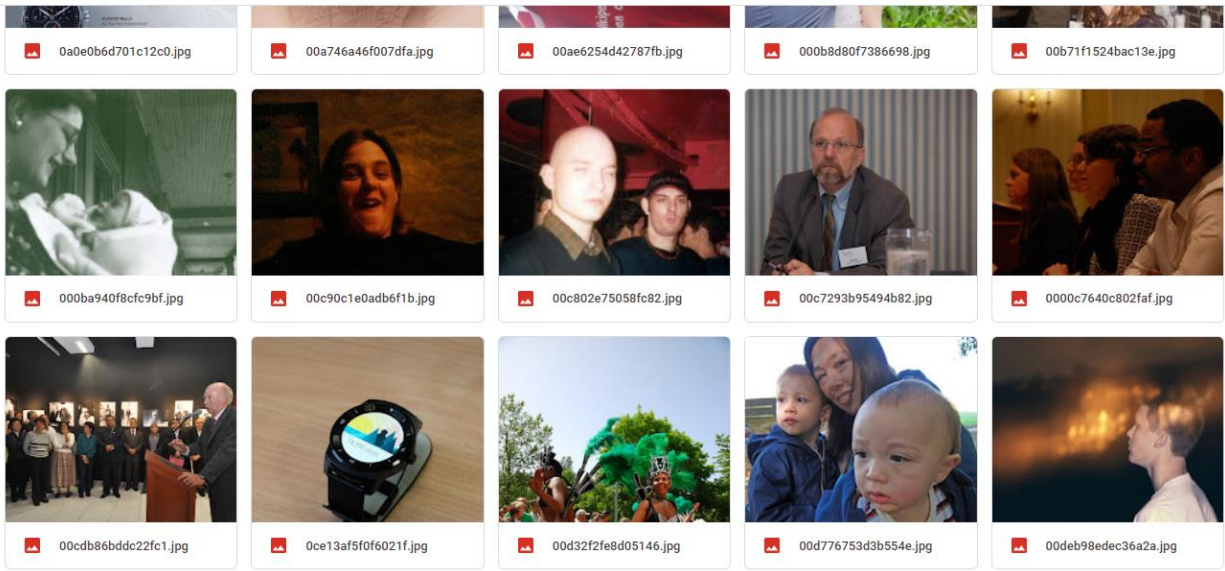
Game UI images

Game UI images 2

Object detection reducing complexity results
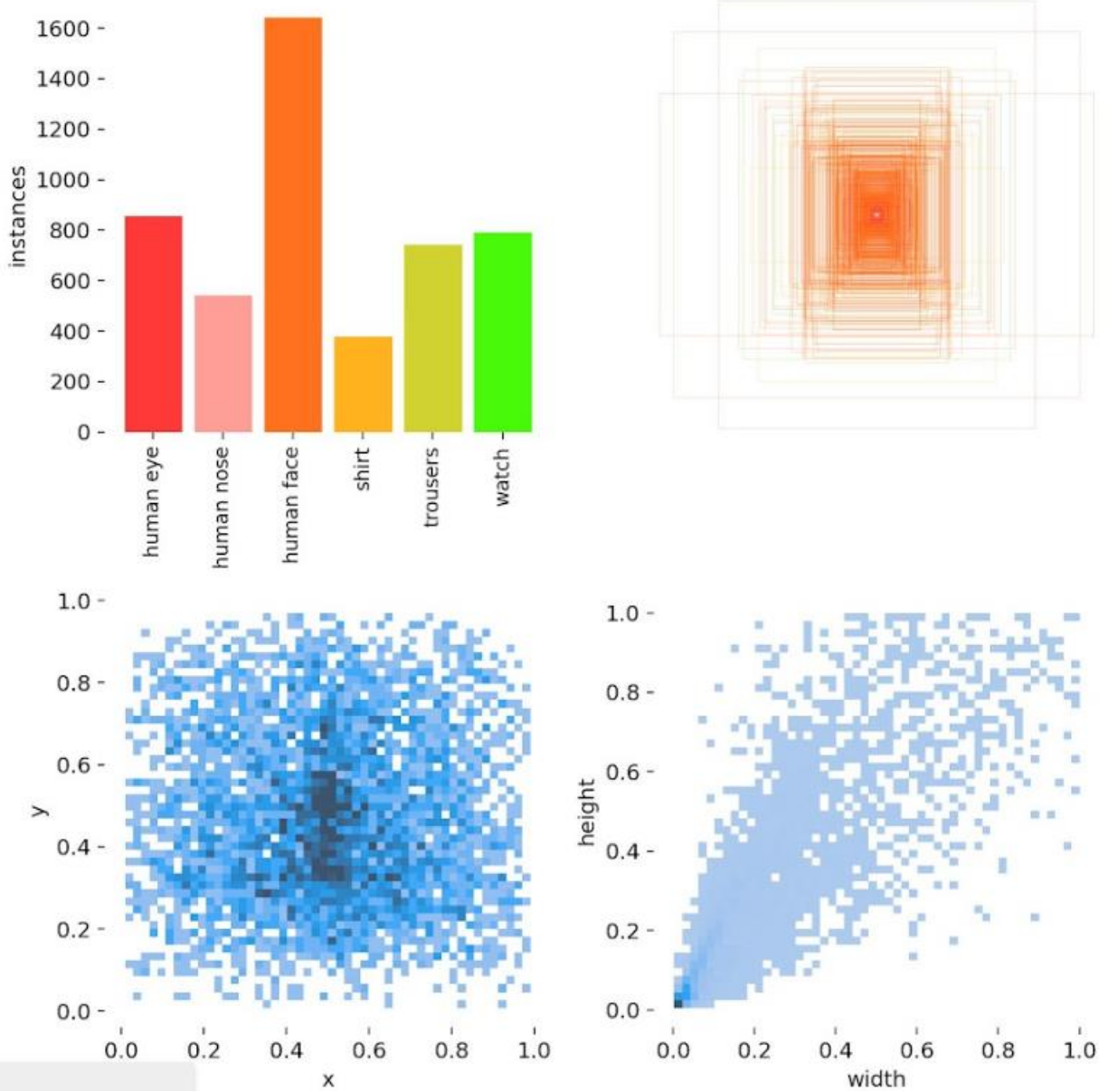
Genterated charts

Sample datasets used for training
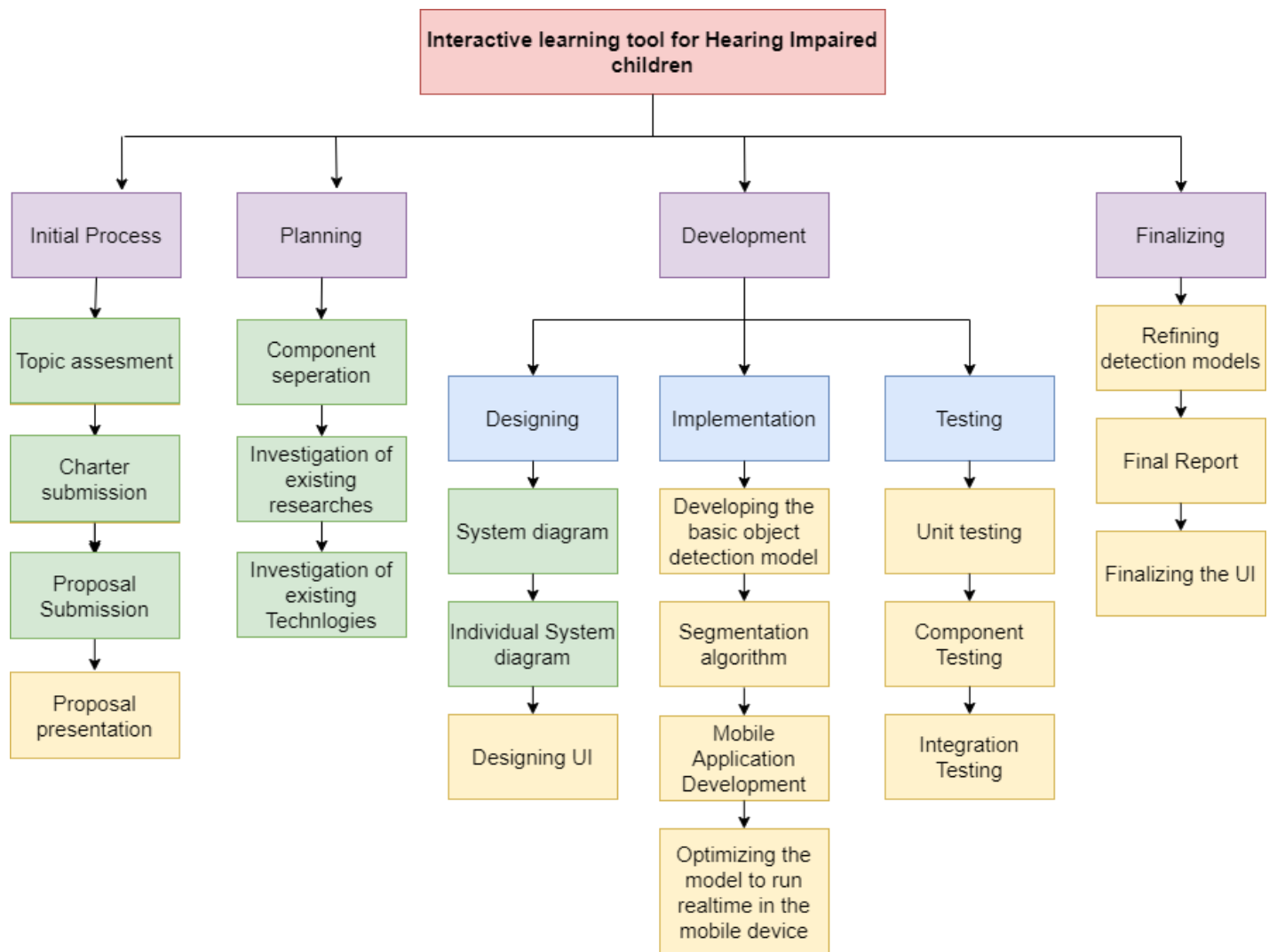
Work breakdown structure & allocates resources for each areas.
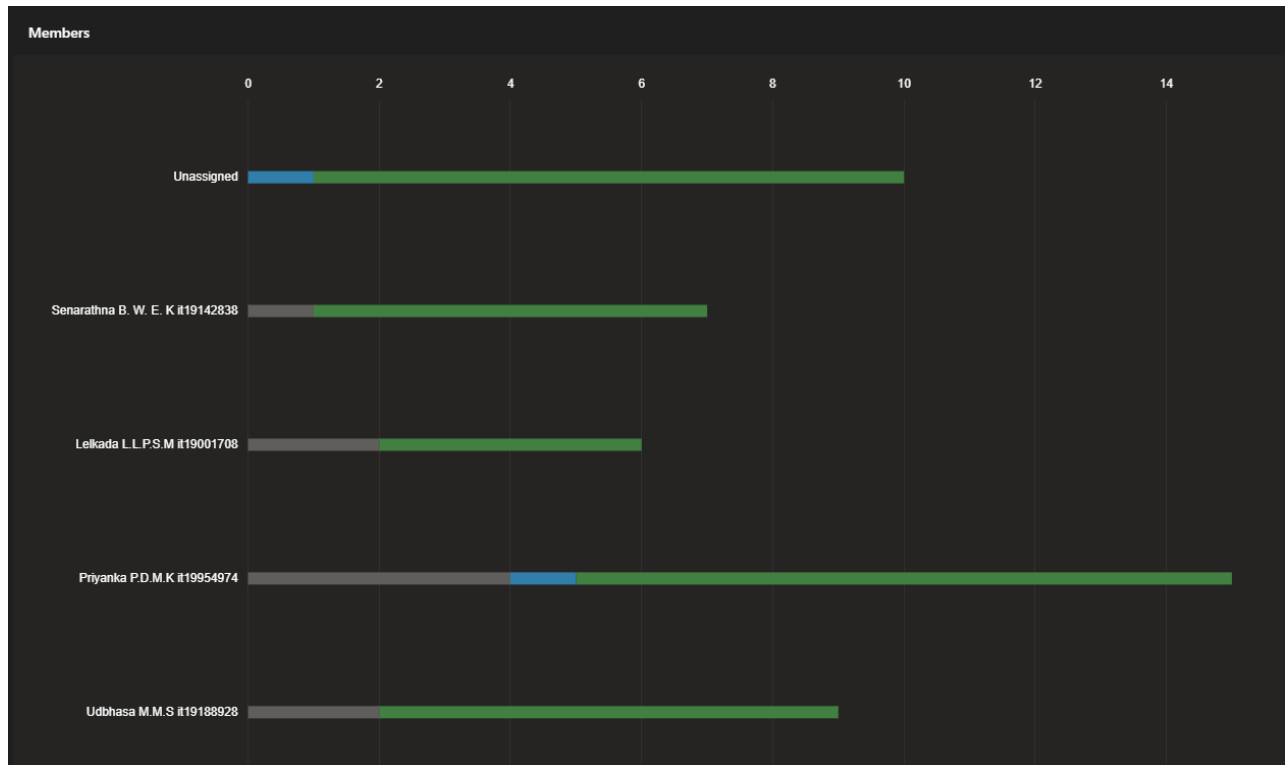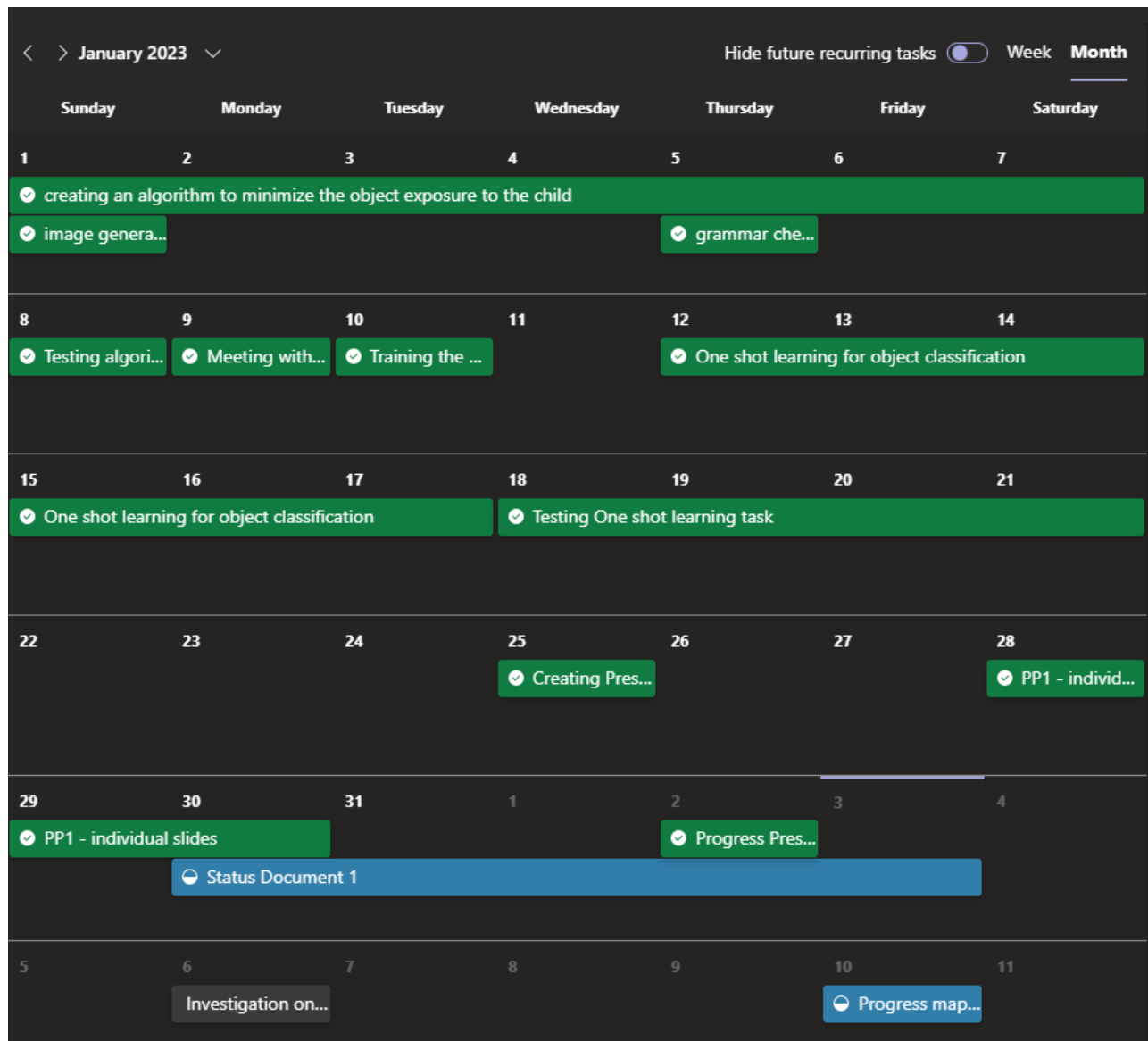

Work breakdown chart

05.Gannt Chart

	22-Jun	22-Jul	22-Aug	22-Sep	22-Oct	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23
Topic Selection													
Initial Supervior Discussion													
Idea refining (Brainstorming)													
Requirement Analysis													
Literature Review													
System Overview Diagram													
Topic Assesment													
Individual Component diagram													
Proposal document													
Design Wireframes													
Data collection													
Training object detection model													
Model comparison													
creating object segmentaion model (Mask-RCNN)													
crop segmentation													
Game development													
Ui and model intergration													
Backend integration													
UI improvement													
Research paper writing													
Final report													
Final presentation viva													

Gannt chart

06. Teams Planner Charts

Task planner charts

Individual task distribution

Monthly work on task planner

01 Feb, 2023 1 commit

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

31 Jan, 2023 2 commits

lip detetct
Udbhasa M M S authored 2 days ago — c145782c

text similarity calculation model added
Lelkada L L P S M authored 3 days ago — 7f472f31

30 Jan, 2023 3 commits

Daily changes
Udbhasa M M S authored 3 days ago — 5da23d62

data clean script added
Lelkada L L P S M authored 3 days ago — a3cf2779

pdf to text script added
Lelkada L L P S M authored 4 days ago — b15dcca0

29 Jan, 2023 1 commit

extract text from pdf script added
Lelkada L L P S M authored 4 days ago — 90980d10

27 Jan, 2023 4 commits

file added
Lelkada L L P S M authored 6 days ago — 2c757d48

Gitlab commit history

07. Field Visits

Visit to School of Deaf Rathmalana

Initial Meeting the Executive board of CEHIC

Meeting Sister Greta Nalawaththa to get Learning Materials

Intertactive sessions with teachers about teaching techniques

Knowledge sharing session with sister greta