Brainy
A game-based e-learning application for preschoolers

Project ID: 2022-238

Status Document - 01

Fernando S.M.J.
(IT19053592)

Bachelor of Science Special (Honors) Degree in
Information Technology
Department of Software Engineering

Sri Lanka Institute of Information Technology
Sri Lanka

February 2022

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DECLARATION

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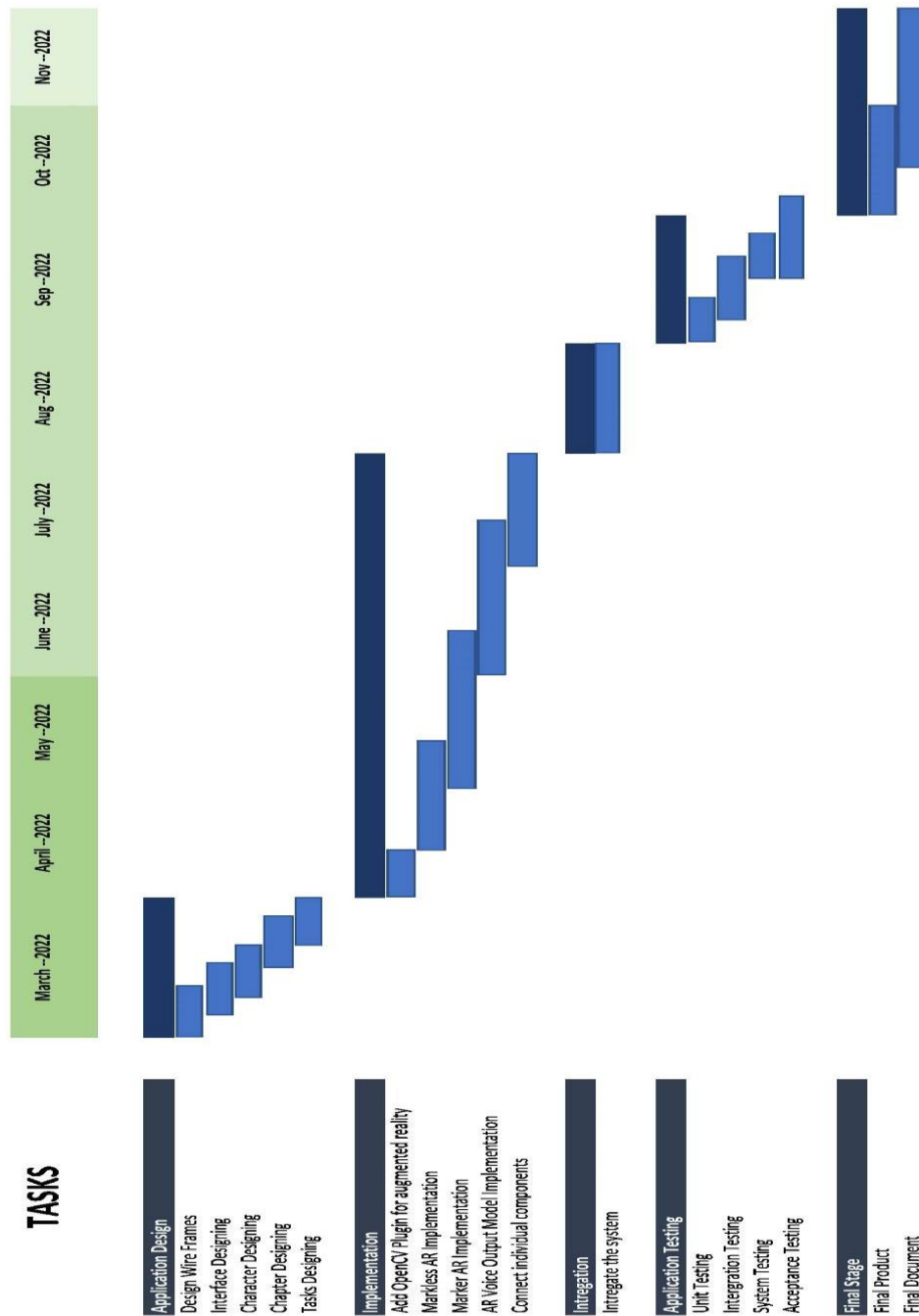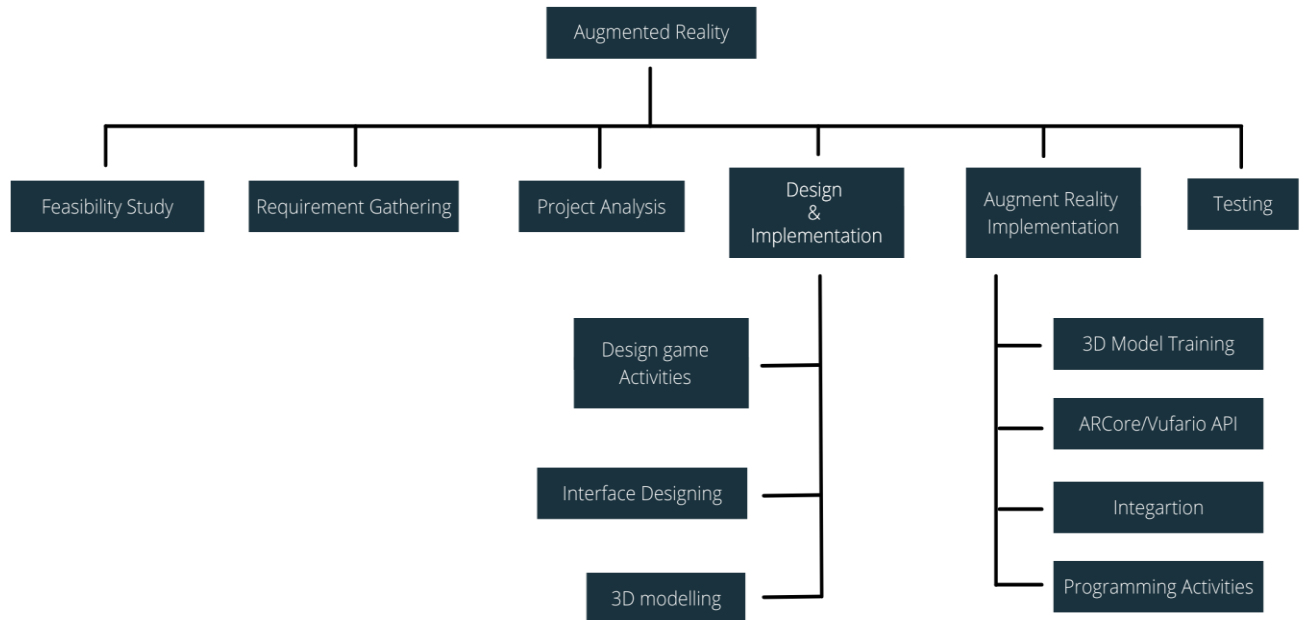
Student ID	Name
IT19053592	Fernando S.M.J.

Contents

.

1. Gantt chart for Design & implementation

2. Work breakdown structure

3. Project management tool

IT19053592-To do

+ Add task

◯ Integrate component

📣

🗓 06/01

◯ Design Interfaces

◔

🗓 05/31

Completed tasks   9   ∧

✓ ~~Test Augmented reality with device~~

JI   Completed by Jayasundara J.M.I....

✓ ~~Use Open CV for Unity plugin~~

JI   Completed by Jayasundara J.M.I....

✓ ~~Implement Augment reality Model~~

IT19053592-To do

+ Add task

- ✓ ~~Implement Augment reality Model~~
  📢

  (JI) Completed by Jayasundara J.M.I....

- ✓ ~~Implement camera Interface for augment reality~~

  (JI) Completed by Jayasundara J.M.I....

- ✓ ~~Design augmented reality characters~~
  ❗

  (JI) Completed by Jayasundara J.M.I....

- ✓ ~~Design objects for augmented reality~~
  ❗

  (JI) Completed by Jayasundara J.M.I....

- ✓ ~~Design characters~~

IT19053592-To do

+ Add task .

JI Completed by Jayasundara J.M.I....

✓ ~~Design objects for augmented reality~~

!

JI Completed by Jayasundara J.M.I....

✓ ~~Design characters~~

JI Completed by Jayasundara J.M.I....

✓ ~~Create Unity Project~~

JI Completed by Jayasundara J.M.I....

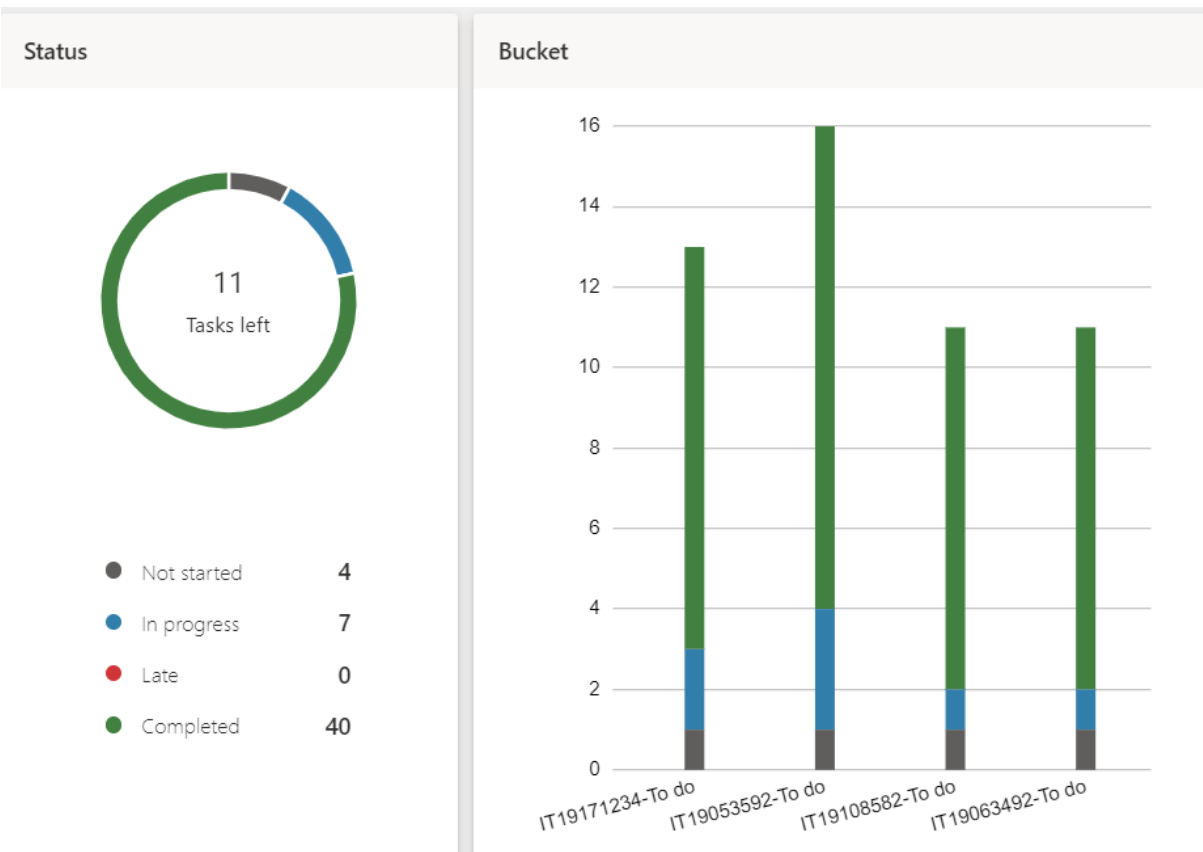✓ ~~Create branch in GitLab Project~~

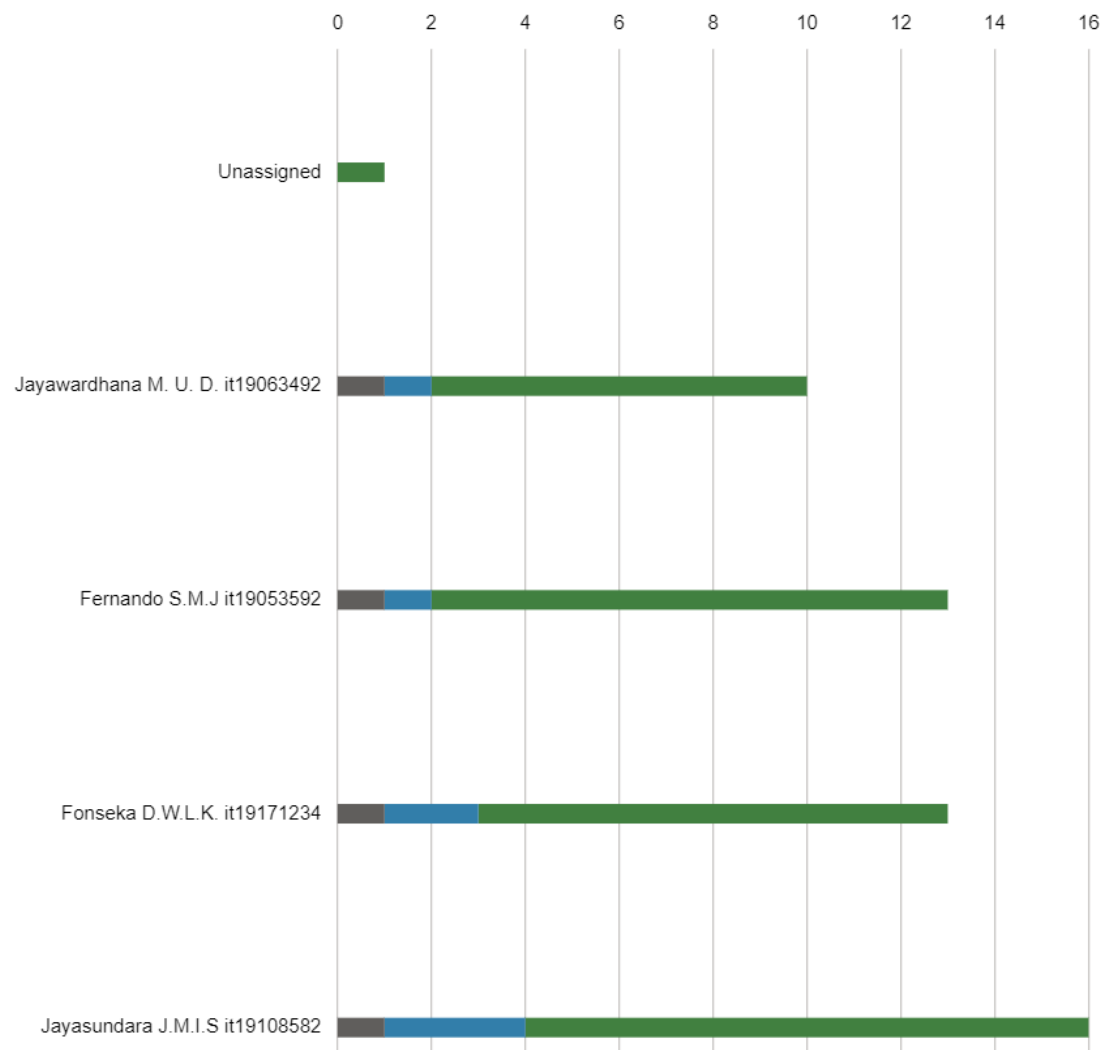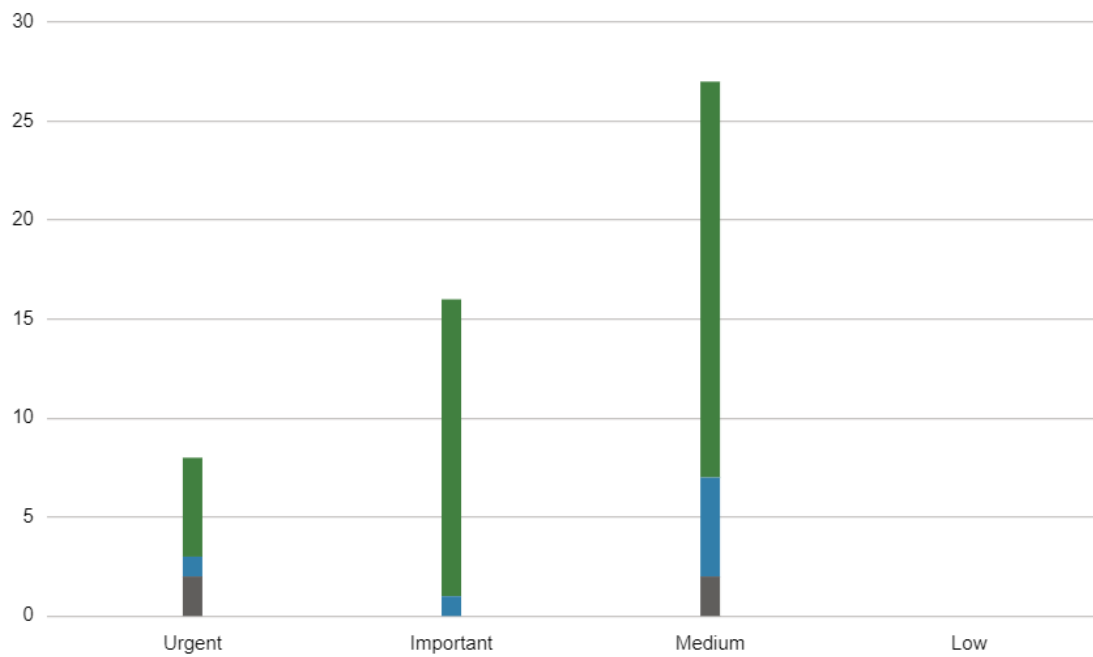!

Completed by Fonseka D.W.L.K. i...

4. Generated Reports

Brainy_Development_Tasks

	Task title		Completed by	Priority	Completed ↑	Bucket
+	Add a task					
✓	Use google voice recognition plugin	J	Jayawardhana M. U....	!	5/13	IT19063492-To do
✓	design mobile friendly interface for the model	J	Jayawardhana M. U....		5/13	IT19063492-To do
✓	Test model using real device	J	Jayawardhana M. U....		5/13	IT19063492-To do
✓	Test Voice recognition model	JI	Jayasundara J.M.I.S i...	!	5/13	IT19063492-To do
✓	implement a model for voice recognition	JI	Jayasundara J.M.I.S i...	🔔	5/13	IT19063492-To do
✓	Implement Voice recognition model	JI	Jayasundara J.M.I.S i...		5/13	IT19063492-To do
✓	design voice recognition interfaces	JI	Jayasundara J.M.I.S i...		5/13	IT19063492-To do
✓	Design tasks interface	JI	Jayasundara J.M.I.S i...		5/13	IT19063492-To do
✓	Implement camera Interface for augment reality	JI	Jayasundara J.M.I.S i...		5/13	IT19108582-To do
✓	Design augmented reality characters	JI	Jayasundara J.M.I.S i...	!	5/13	IT19108582-To do
✓	Design objects for augmented reality	JI	Jayasundara J.M.I.S i...	!	5/13	IT19108582-To do
✓	Implement Augment reality Model	JI	Jayasundara J.M.I.S i...	🔔	5/13	IT19108582-To do
✓	Use Open CV for Unity plugin	JI	Jayasundara J.M.I.S i...		5/13	IT19108582-To do
✓	Test Augmented reality with device	JI	Jayasundara J.M.I.S i...		5/13	IT19108582-To do

Brainy_Development_Tasks

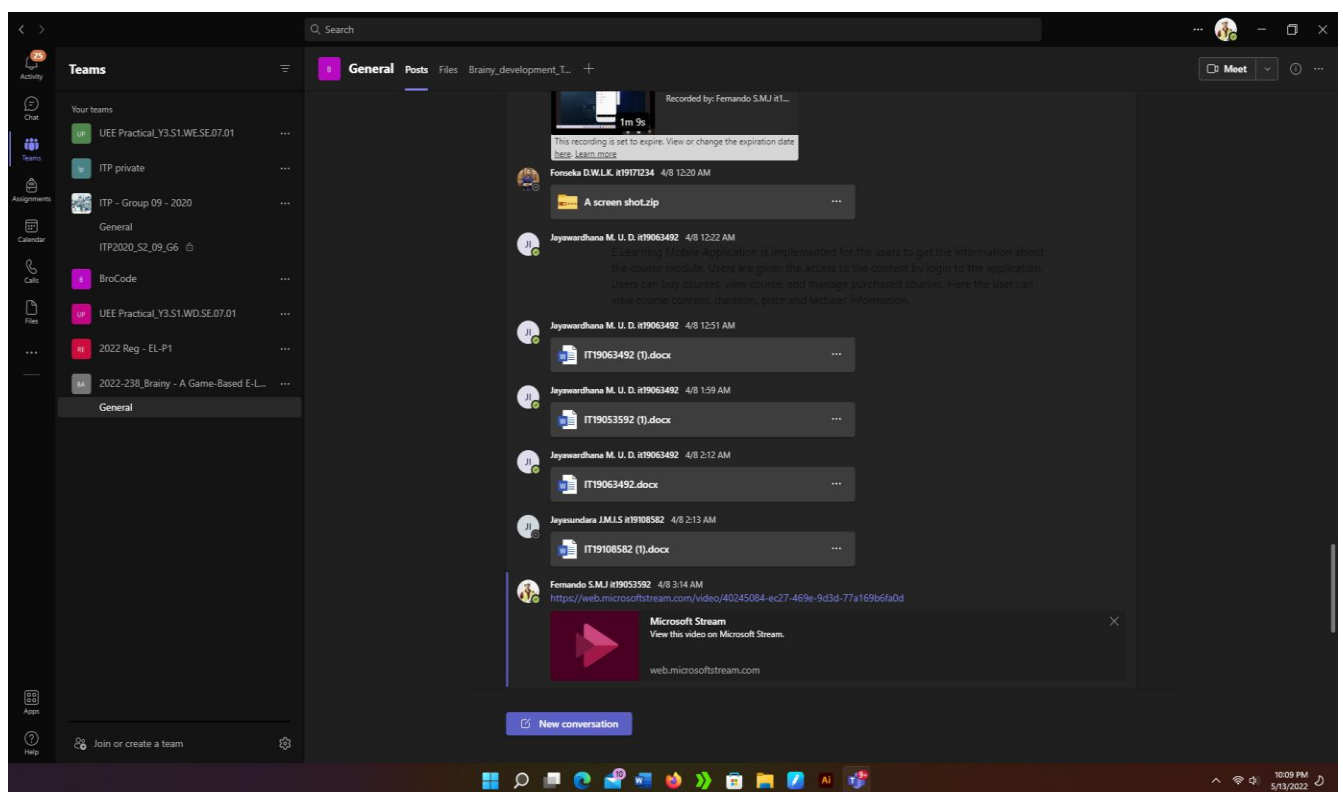|	Task title		Completed by	Priority	Completed ↑	Bucket
✓	Test Augmented reality with device	JI	Jayasundara J.M.I.S i...		5/13	IT19108582-To do
✓	Design mobile interface for post detection	JI	Jayasundara J.M.I.S i...		5/13	IT19171234-To do
✓	Use TensorFlow libraries	JI	Jayasundara J.M.I.S i...	!	5/13	IT19171234-To do
✓	Test pose detection model	JI	Jayasundara J.M.I.S i...	!	5/13	IT19171234-To do
✓	design interface for post detection	JI	Jayasundara J.M.I.S i...		5/13	IT19171234-To do
✓	Implement post detection model	JI	Jayasundara J.M.I.S i...	🔔	5/13	IT19171234-To do
✓	Create WebSocket for python letter detection model	JI	Jayasundara J.M.I.S i...	🔔	5/13	IT19053592-To do
✓	Implement edges detection model	JI	Jayasundara J.M.I.S i...	!	5/13	IT19053592-To do
✓	Test the python model	JI	Jayasundara J.M.I.S i...		5/13	IT19053592-To do
✓	Implemet a model using python	JI	Jayasundara J.M.I.S i...	🔔	5/13	IT19053592-To do
✓	Implement interface for letter identification	JI	Jayasundara J.M.I.S i...	!	5/13	IT19053592-To do
✓	added OpenCV for unity plugin	JI	Jayasundara J.M.I.S i...		5/13	IT19053592-To do
✓	Implement Model for object detection	JI	Jayasundara J.M.I.S i...	!	5/13	IT19053592-To do
✓	Test the object detection function	JI	Jayasundara J.M.I.S i...		5/13	IT19053592-To do
✓	Design camera object	JI	Jayasundara J.M.I.S i...	!	5/13	IT19053592-To do

Brainy_Development_Tasks

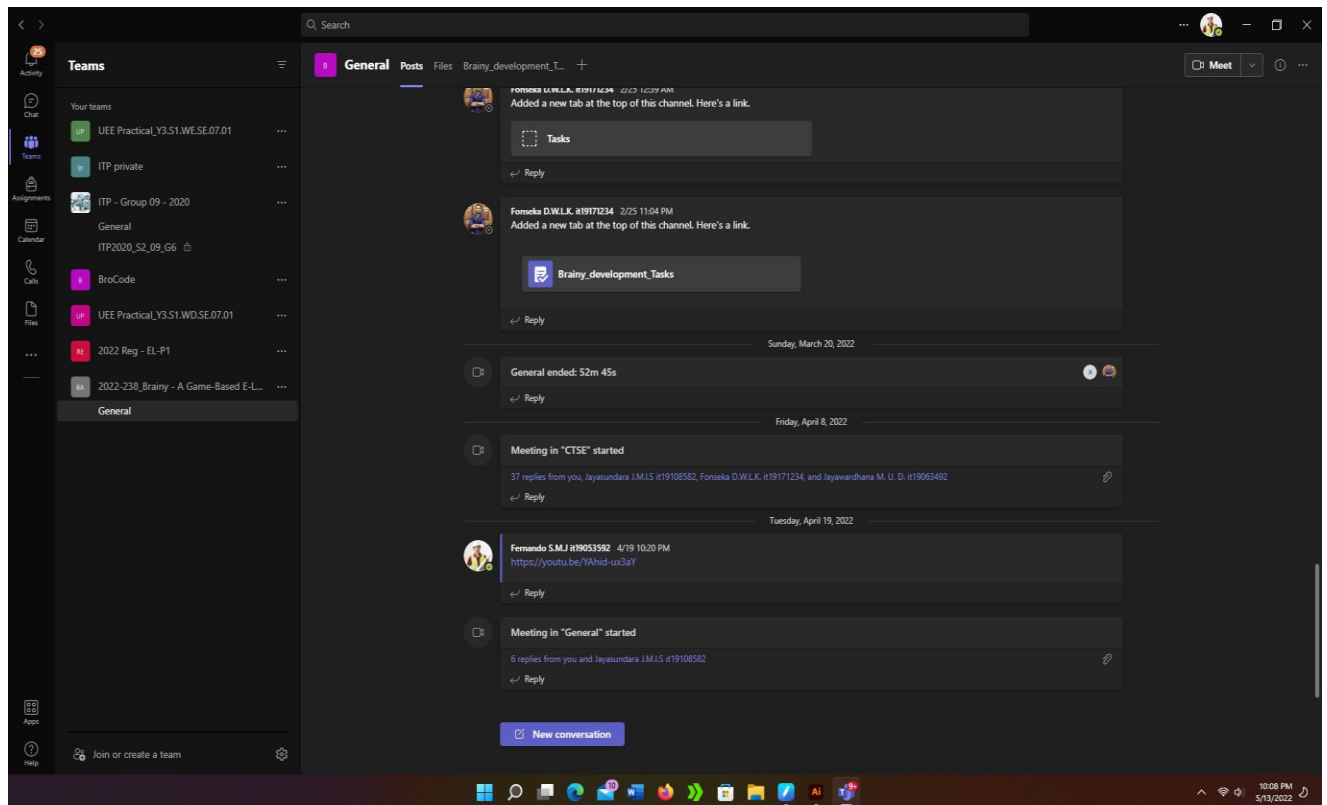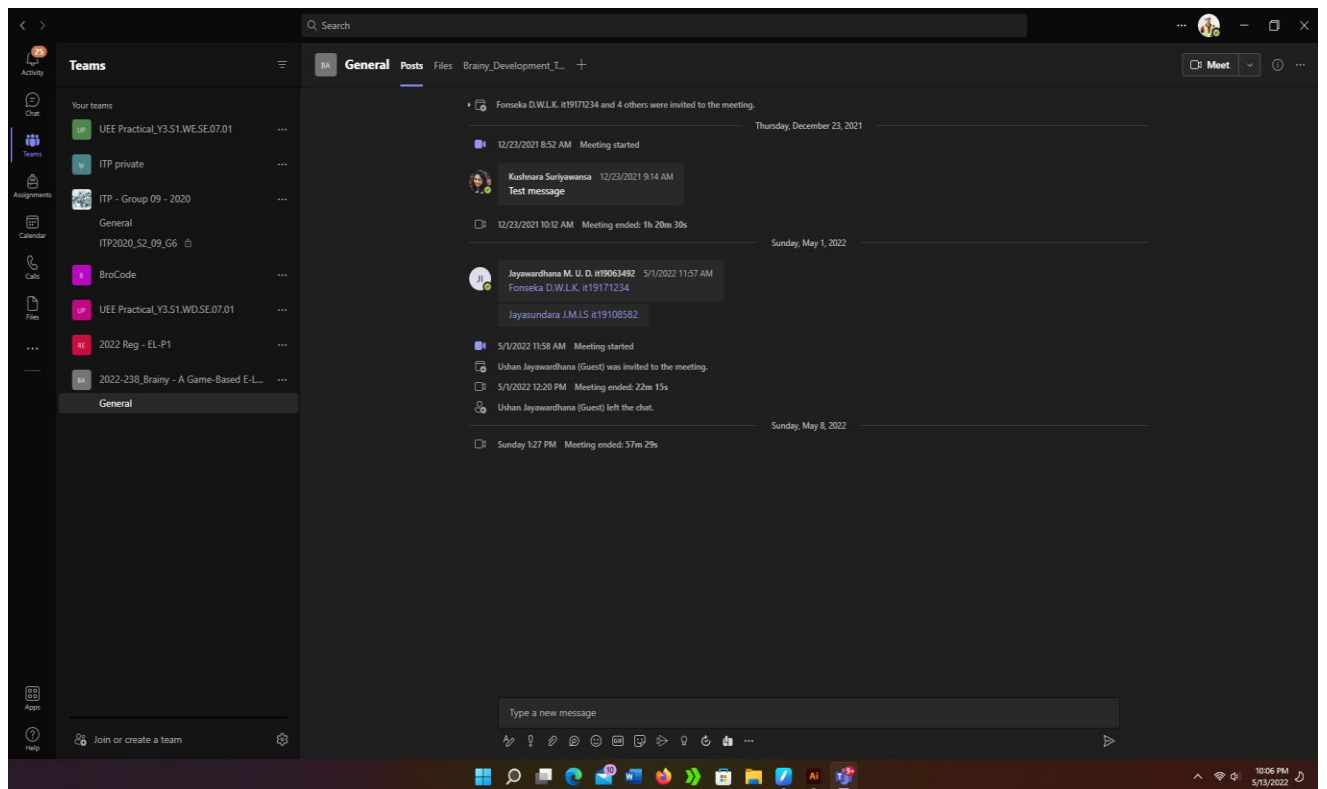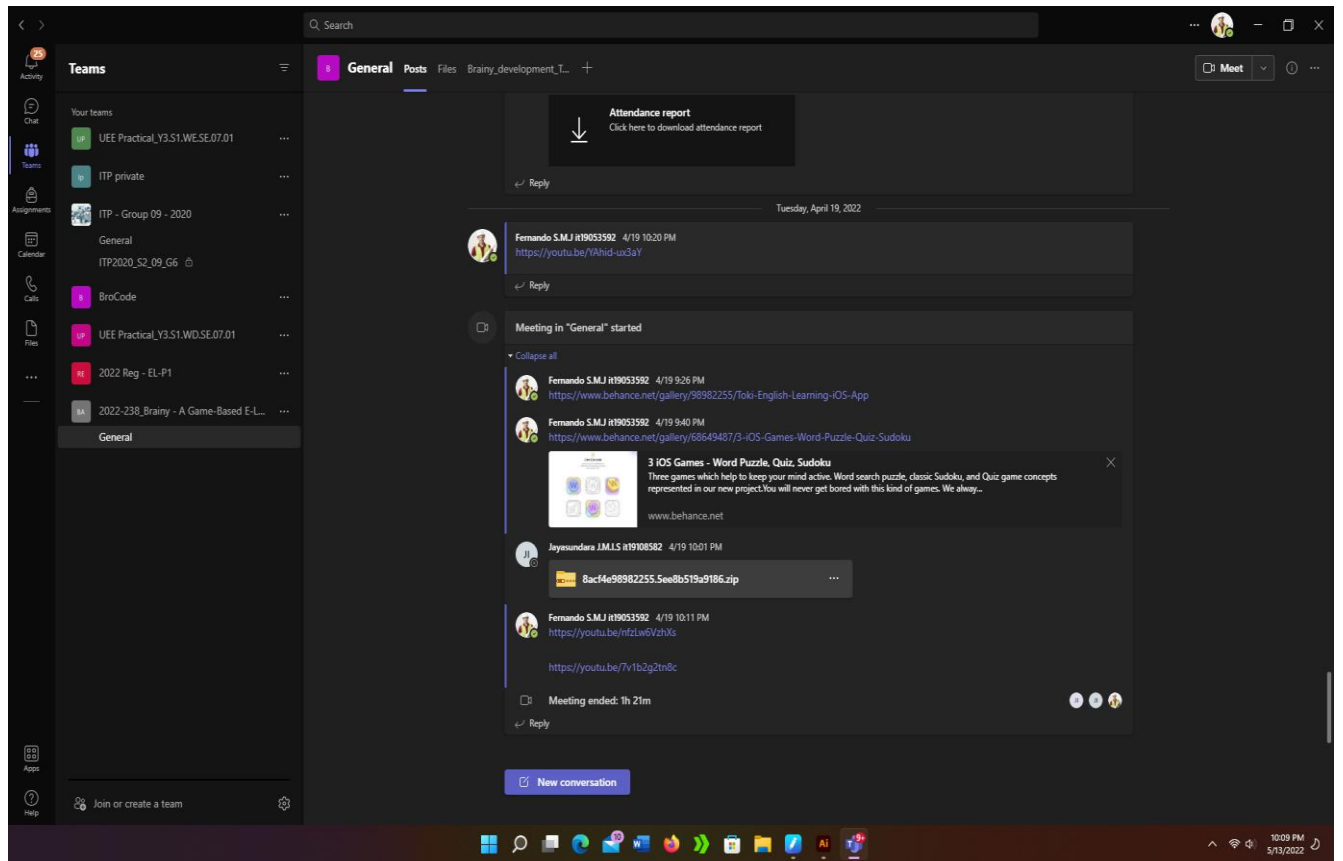|	Task title		Completed by	Priority	Completed ↑	Bucket
✓	Implement Model for object detection		Jayasundara J.M.I.S i...	!	5/13	IT19053592-To do
✓	Test the object detection function		Jayasundara J.M.I.S i...		5/13	IT19053592-To do
✓	Design camera object		Jayasundara J.M.I.S i...	!	5/13	IT19053592-To do
✓	Design characters		Jayasundara J.M.I.S i...		5/13	IT19108582-To do
✓	Create Unity Project		Jayasundara J.M.I.S i...		5/13	IT19108582-To do
✓	Design characters		Jayasundara J.M.I.S i...		5/13	IT19171234-To do
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✓	Create Unity Project		Jayasundara J.M.I.S i...		5/13	IT19171234-To do
✓	Create branch in GitLab Project		Fonseka D.W.L.K. it1...		2/25	IT19063492-To do
✓	Create branch in GitLab Project		Fonseka D.W.L.K. it1...	!	2/25	IT19108582-To do
✓	Create branch in GitLab Project		Fonseka D.W.L.K. it1...	!	2/25	IT19053592-To do
✓	Create branch in GitLab Project	🗒	Fonseka D.W.L.K. it1...	!	2/25	IT19171234-To do
✓	Create ReadMe.md file		Fonseka D.W.L.K. it1...	!	2/25	IT19171234-To do
✓	Create GitLab group and project		Fonseka D.W.L.K. it1...	!	2/25	IT19171234-To do

Status

11
Tasks left

⚫	Not started	4
🔵	In progress	7
🔴	Late	0
🟢	Completed	40

Bucket

Priority

	30				
25					
20					
15					
10					
5					
0	Urgent	Important	Medium	Low	

	0	2	4	6	8	10	12	14	16
Unassigned									
Jayawardhana M. U. D. it19063492									
Fernando S.M.J it19053592									
Fonseka D.W.L.K. it19171234									
Jayasundara J.M.I.S it19108582									

5. Screenshots of MS chats and calls

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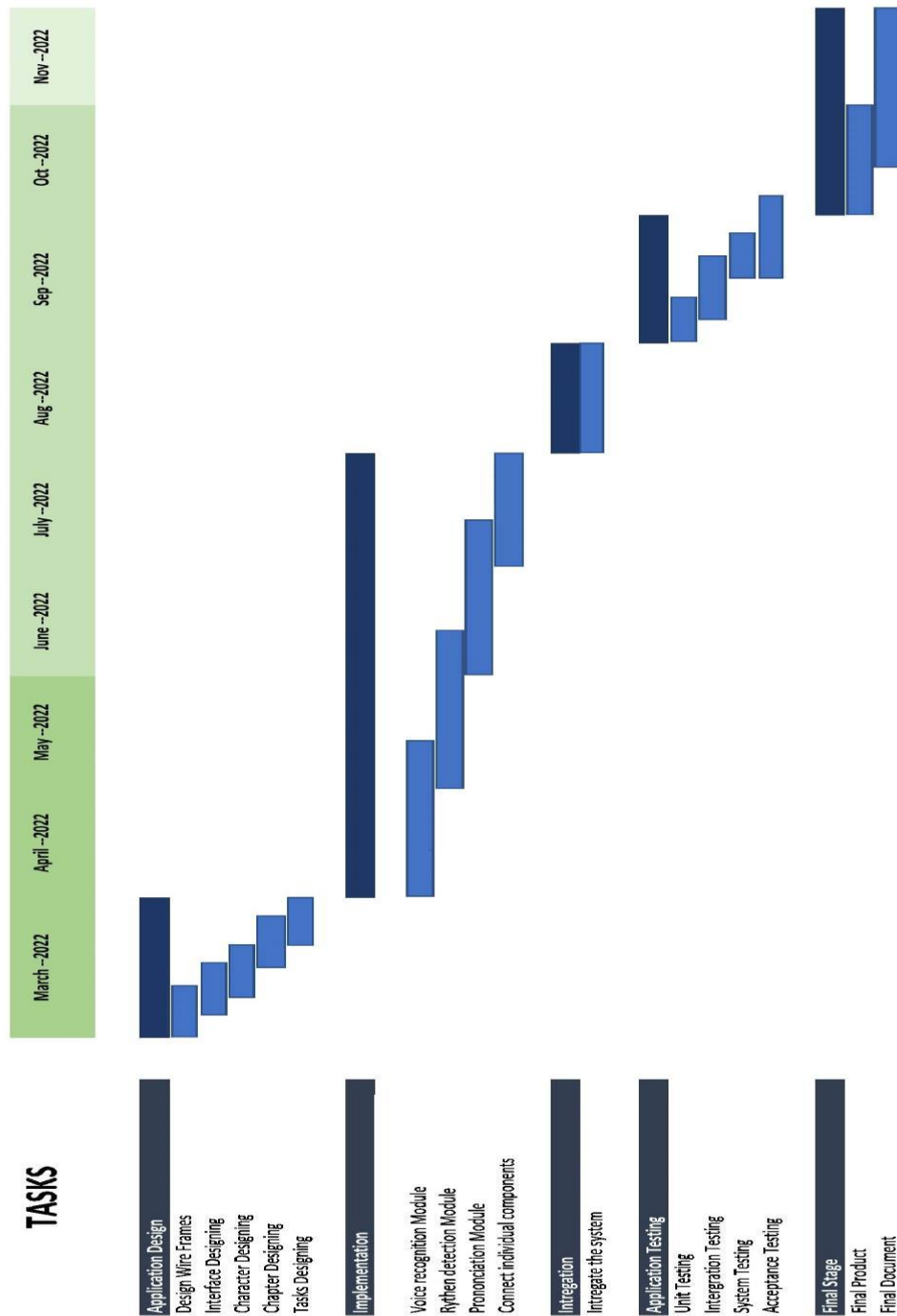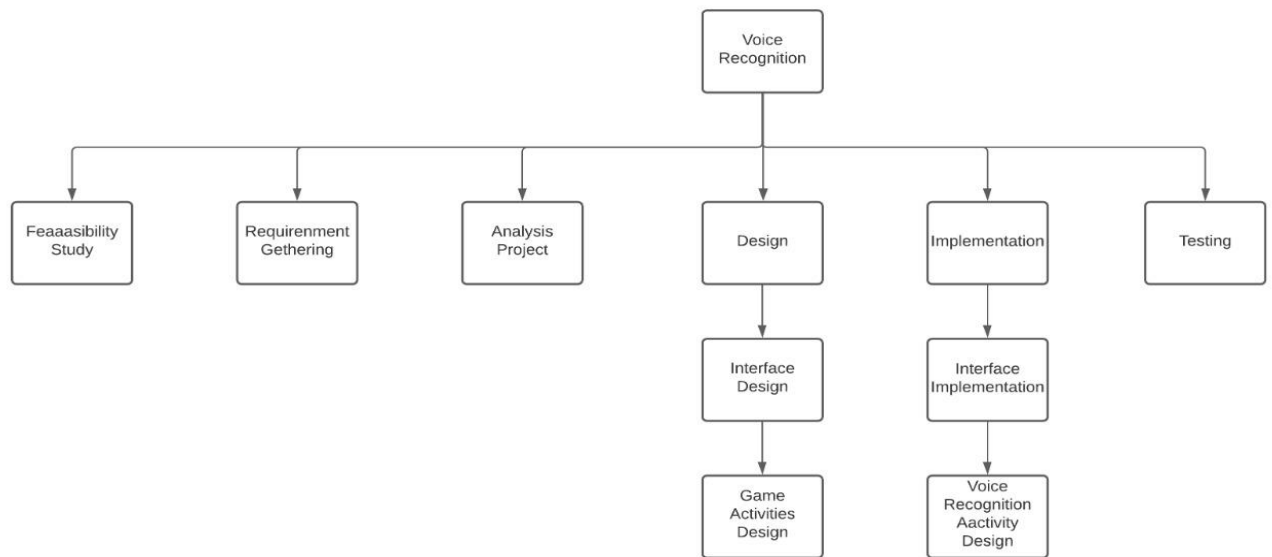
Student ID	Name
IT19063492	Jayawardhana M.U.D.

Contents

.

1. Gantt chart for Design & implementation

2. Work breakdown structure

3. Project management tool

IT19063492-To do

+ Add task

○ Test with unity

❗ ◐

📅 05/31   Ⓙ

○ Integrate voice recognition system

📅 05/31   Ⓙ

Completed tasks   9   ⌃

✔ ~~Test model using real device~~

Ⓙ Completed by Jayawardhana M. …

✔ ~~design mobile friendly interface for the model~~

Ⓙ Completed by Jayawardhana M. …

✔ ~~Test Voice recognition model~~

IT19063492-To do

+ Add task

✓ ~~Test Voice recognition model~~

❗

JI   Completed by Jayasundara J.M.I....

✓ ~~implement a model for voice recognition~~

🔊

JI   Completed by Jayasundara J.M.I....

✓ ~~Use google voice recognition plugin~~

❗

J   Completed by Jayawardhana M. ...

✓ ~~Implement Voice recognition model~~

JI   Completed by Jayasundara J.M.I....

✓ ~~design voice recognition interfaces~~

IT19063492-To do

+ Add task

!

(J) Completed by Jayawardhana M. ...

☑ ~~Implement Voice recognition model~~

(JI) Completed by Jayasundara J.M.I....

☑ ~~design voice recognition interfaces~~

(JI) Completed by Jayasundara J.M.I....

☑ ~~Design tasks interface~~

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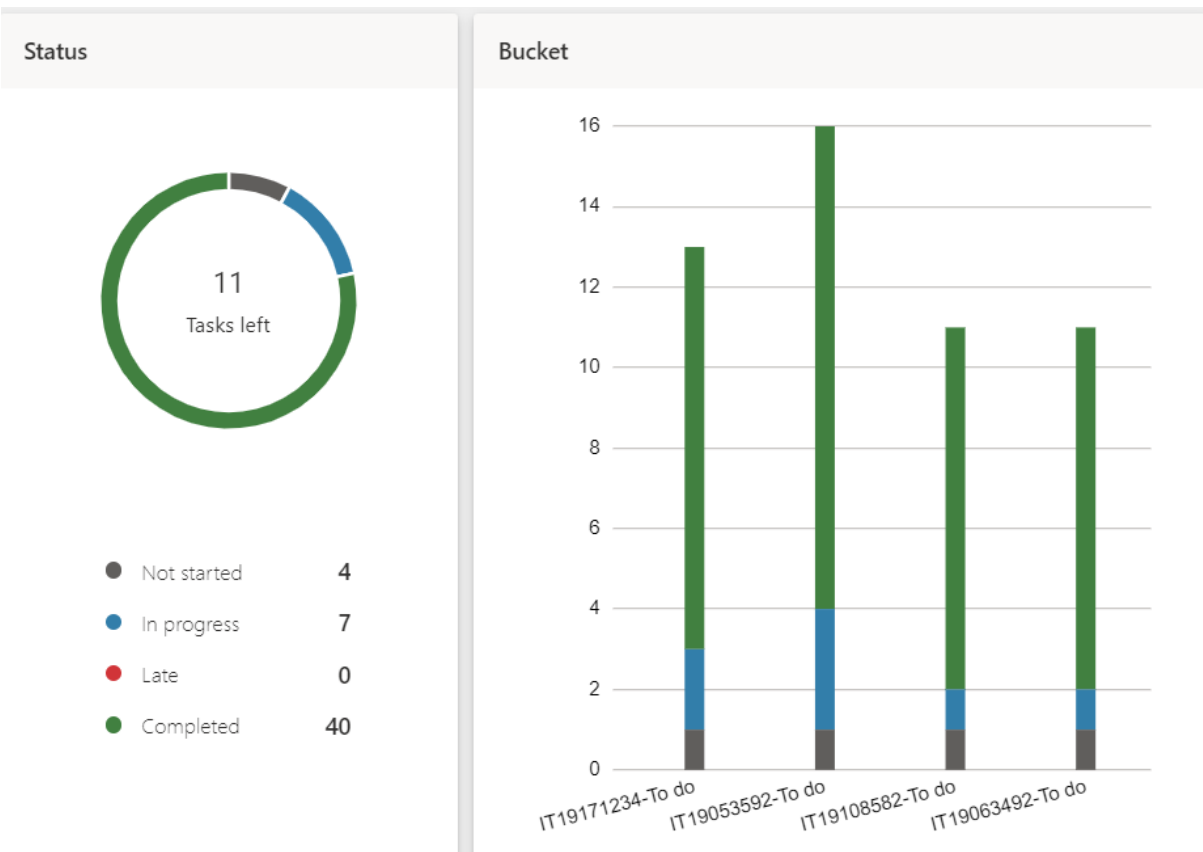☑ ~~Create branch in GitLab Project~~

Completed by Fonseka D.W.L.K. i...

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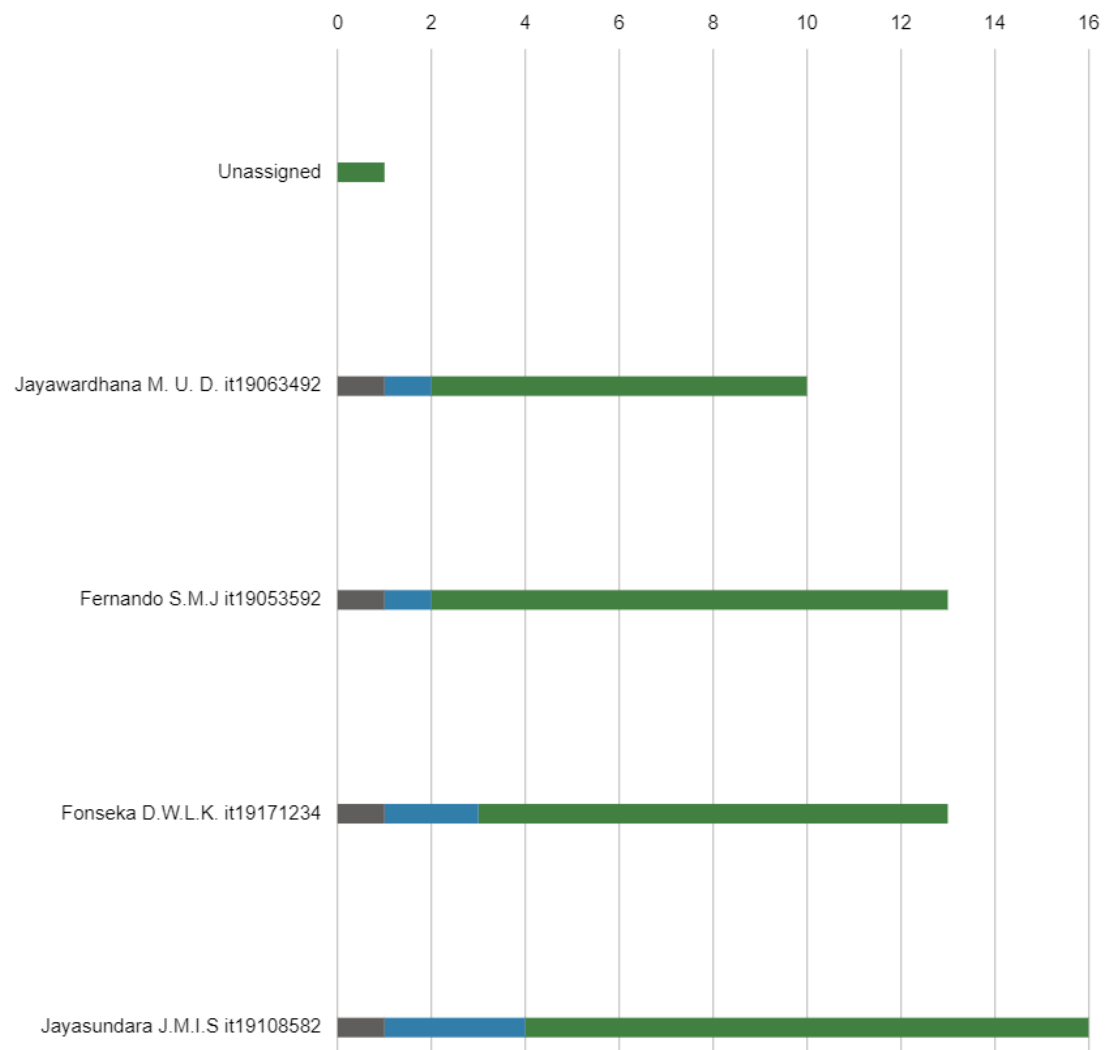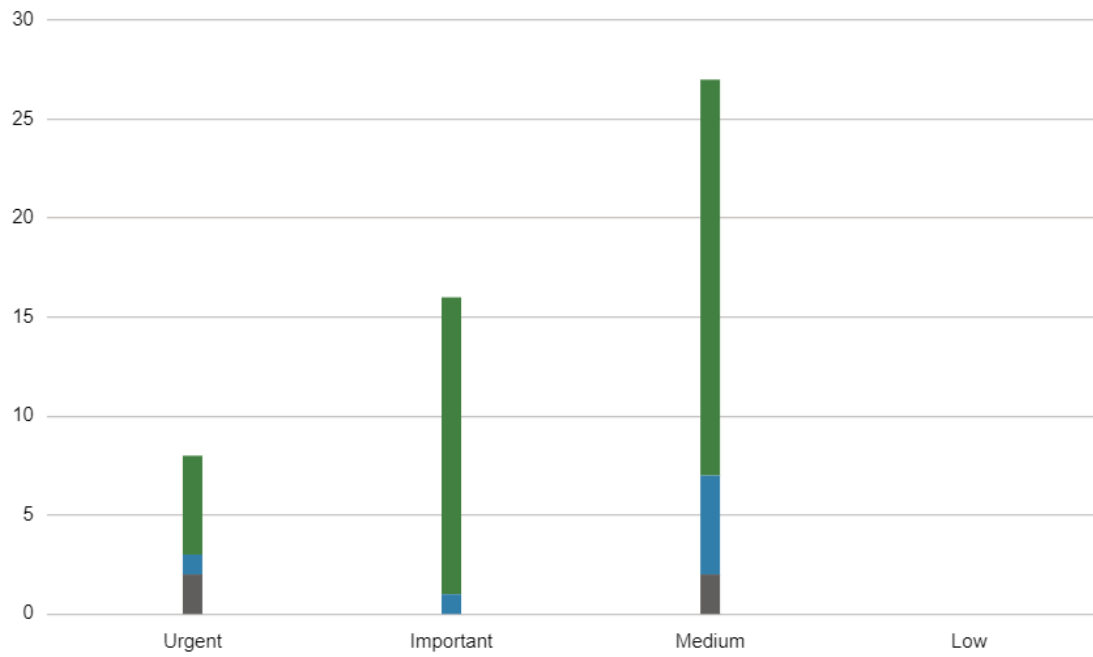| Task title		Completed by	Priority	Completed ↑	Bucket
+	Add a task				
✓	Use google voice recognition plugin	J Jayawardhana M. U....	❗	5/13	IT19063492-To do
✓	design mobile friendly interface for the model	J Jayawardhana M. U....		5/13	IT19063492-To do
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✓	Test Voice recognition model	JI Jayasundara J.M.I.S i...	❗	5/13	IT19063492-To do
✓	implement a model for voice recognition	JI Jayasundara J.M.I.S i...	🔔	5/13	IT19063492-To do
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✓	Implement camera Interface for augment reality	JI Jayasundara J.M.I.S i...		5/13	IT19108582-To do
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✓	Test the python model	JI Jayasundara J.M.I.S i...		5/13	IT19053592-To do
✓	Implemet a model using python	JI Jayasundara J.M.I.S i...	🔔	5/13	IT19053592-To do
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✓	Implement Model for object detection	JI Jayasundara J.M.I.S i...	❗	5/13	IT19053592-To do
✓	Test the object detection function	JI Jayasundara J.M.I.S i...		5/13	IT19053592-To do

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	Task title		Completed by		Priority	Completed ↑	Bucket
✓	Implement Model for object detection		JI	Jayasundara J.M.I.S i...	!	5/13	IT19053592-To do
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✓	Create ReadMe.md file		FI	Fonseka D.W.L.K. it1...	!	2/25	IT19171234-To do
✓	Create GitLab group and project		FI	Fonseka D.W.L.K. it1...	!	2/25	IT19171234-To do

Status

11
Tasks left

- ● Not started   4
- ● In progress   7
- ● Late   0
- ● Completed   40

Bucket

Priority

	30	25	20	15	10	5	0

Urgent   Important   Medium   Low

	0	2	4	6	8	10	12	14	16

Unassigned

Jayawardhana M. U. D. it19063492

Fernando S.M.J it19053592
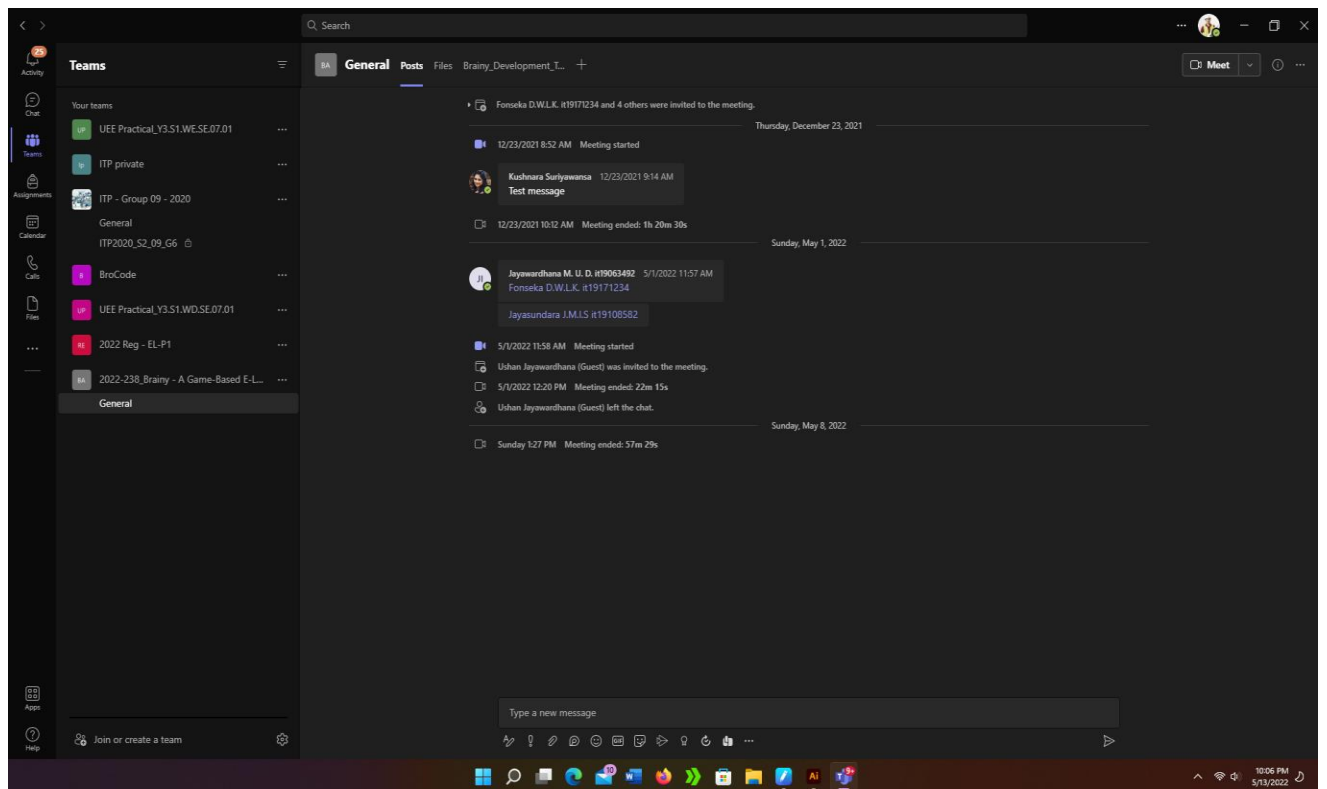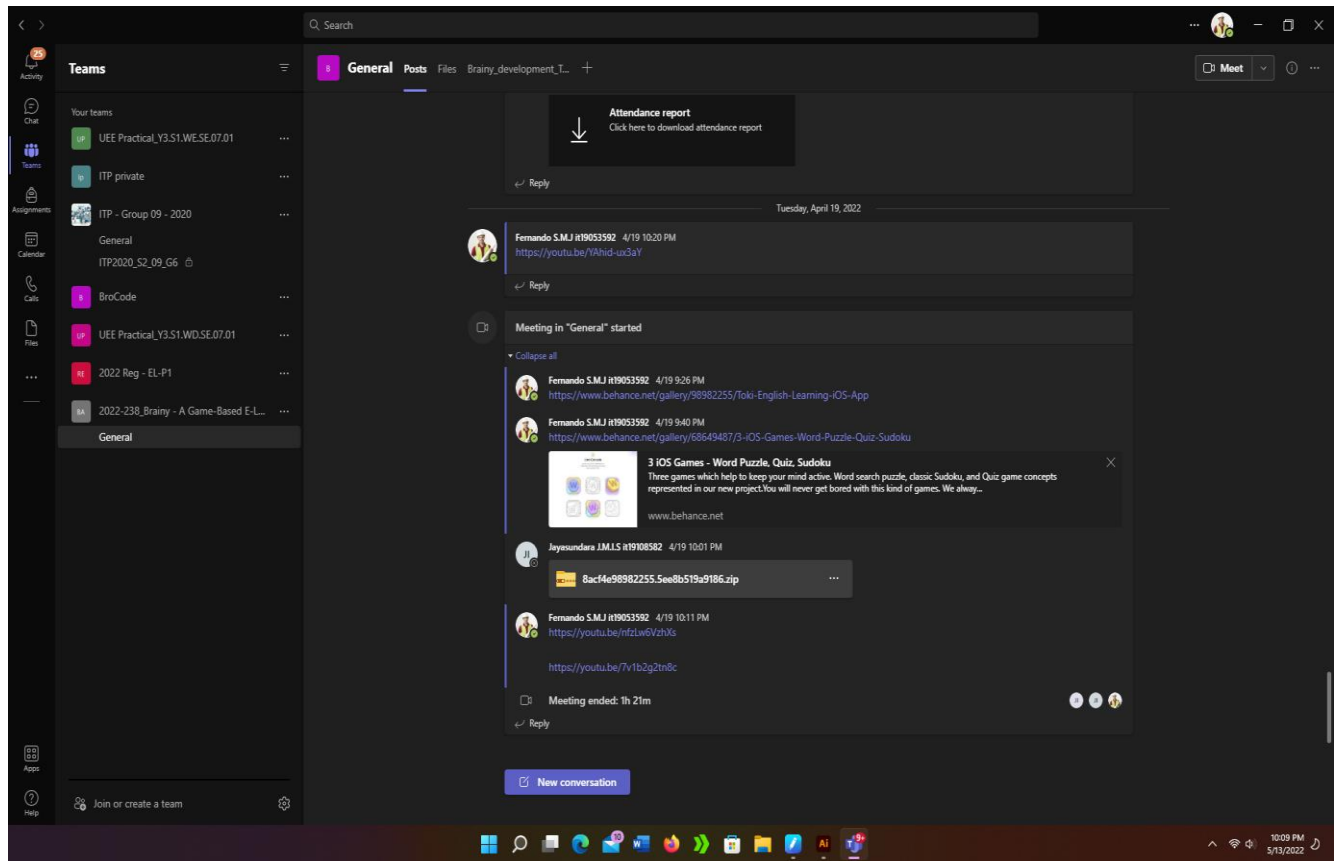
Fonseka D.W.L.K. it19171234

Jayasundara J.M.I.S it19108582

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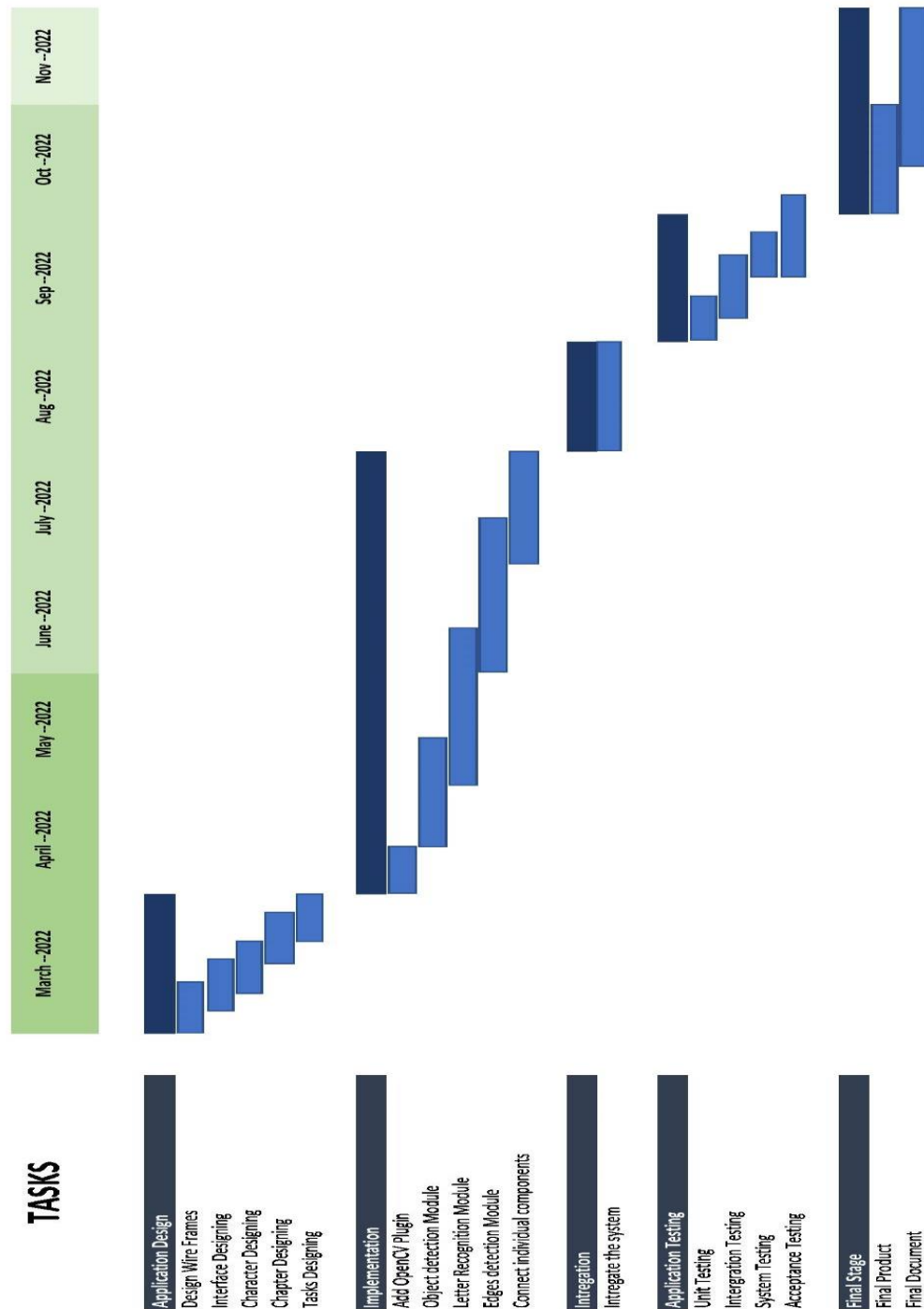
Student ID	Name
IT19108582	Jayasundara
	J.M.I.S.

Contents

.

1. Gantt chart for Design & implementation

2. Work breakdown structure

```
                          ┌─────────────────┐
                          │ Object Detection │
                          └─────────────────┘
   ┌──────────┬──────────┬─────────┬──────────────────┬──────────────────────┬──────────┐
┌─────────┐ ┌──────────┐ ┌────────┐ ┌──────────────┐ ┌──────────────────┐ ┌─────────┐
│Feasibility│ │Requirement│ │Project │ │  Design and  │ │Object Detection  │ │ Testing │
│  Study   │ │ gathering │ │Analysis│ │Implementation│ │ Implementation   │ │         │
└─────────┘ └──────────┘ └────────┘ └──────────────┘ └──────────────────┘ └─────────┘
```

Design and Implementation:
- Design Game activities
- Interface design

Object Detection Implementation:
- Object Detection API
- Object Recognition
- Object localization
- Object Segmentation

Testing:
- Unit Testing
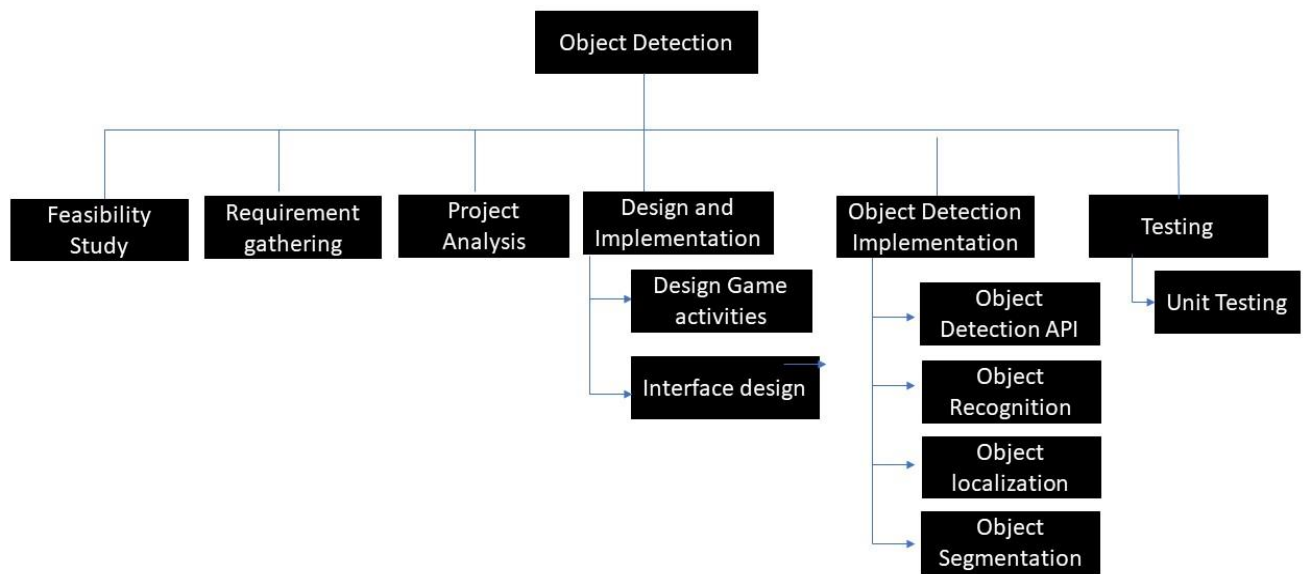
3. Project management tool

IT19108582-To do

+ Add task

○ Integrate component

🗓 06/01   **JI**

○ Test object detection and recognition models

🗓 05/20   **JI**

○ design custom dataset

🗓 05/30   **JI**

○ Implement Unity Interface

🗓 05/31   **JI**
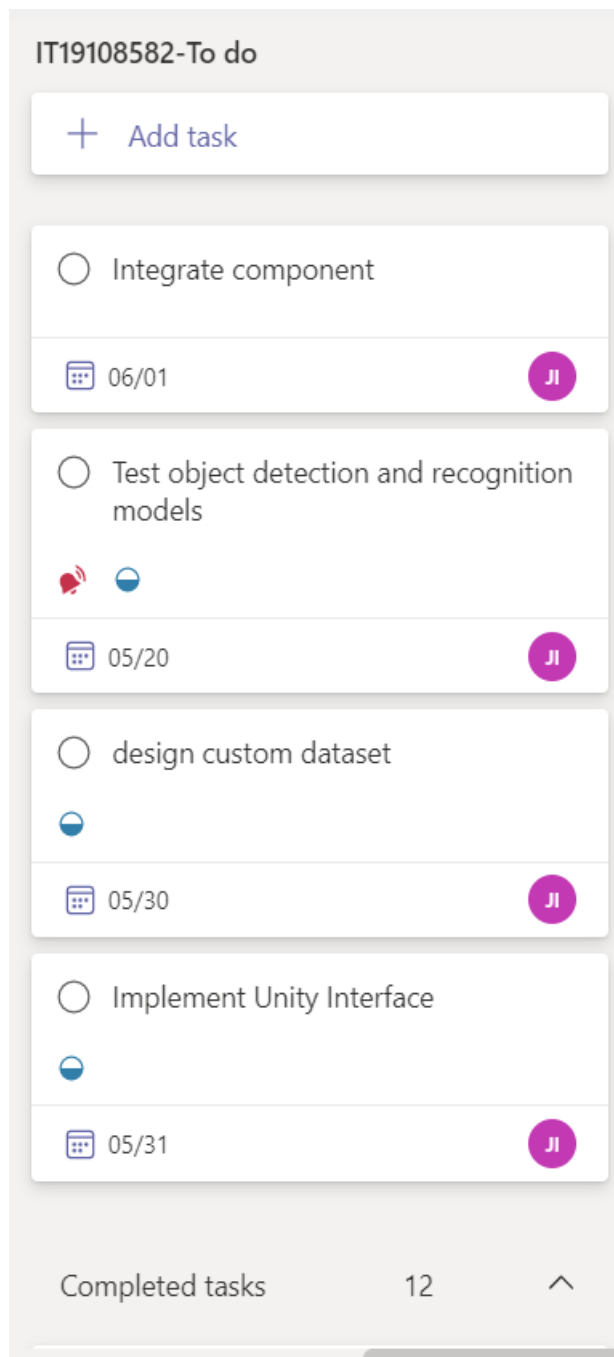
Completed tasks   12   ⌃

IT19108582-To do

+ Add task

Completed tasks   12   ∧

☑ ~~Create WebSocket for python letter detection model~~

📢

JI   Completed by Jayasundara J.M.I....

☑ ~~Implement edges detection model~~

❗

JI   Completed by Jayasundara J.M.I....

☑ ~~Test the python model~~   ...

JI   Completed by Jayasundara J.M.I....

☑ ~~Implemet a model using python~~

📢

JI   Completed by Jayasundara J.M.I....

☑ ~~Implement interface for letter~~

IT19108582-To do

+ Add task

✓ ~~Implement interface for letter identification~~

❗

🟣 JI Completed by Jayasundara J.M.I....

✓ ~~Test the object detection function~~

🟣 JI Completed by Jayasundara J.M.I....

✓ ~~added OpenCV for unity plugin~~

🟣 JI Completed by Jayasundara J.M.I....

✓ ~~Implement Model for object detection~~

❗

🟣 JI Completed by Jayasundara J.M.I....

✓ ~~Design camera object~~

❗

IT19108582-To do

+ Add task

JI · Completed by Jayasundara J.M.I....

✓ ~~Design camera object~~

!

JI · Completed by Jayasundara J.M.I....

✓ ~~Design characters~~

JI · Completed by Jayasundara J.M.I....

✓ ~~Create Unity Project~~

JI · Completed by Jayasundara J.M.I....

✓ ~~Create branch in GitLab Project~~

!

Completed by Fonseka D.W.L.K. i...

4. Generated Reports

Brainy_Development_Tasks

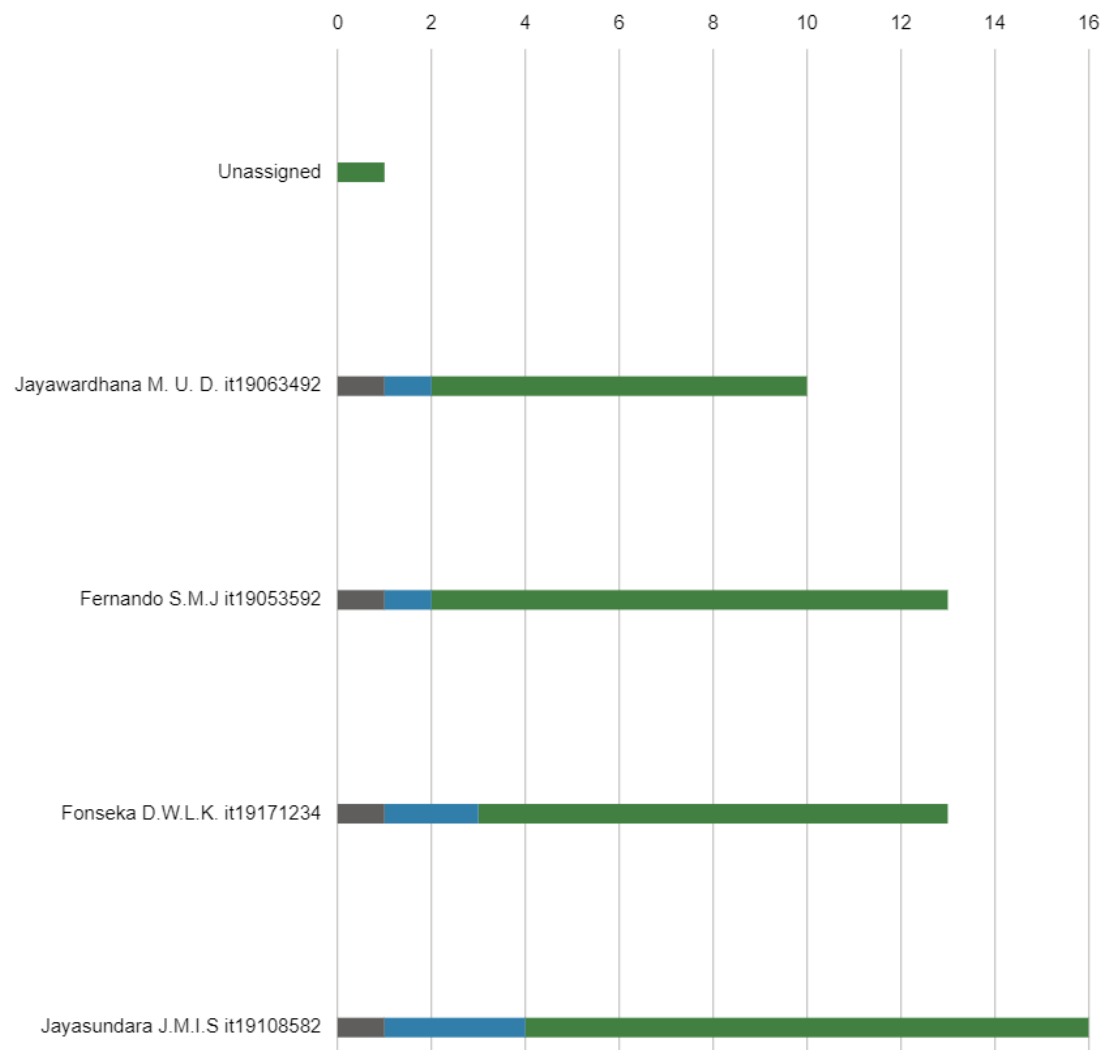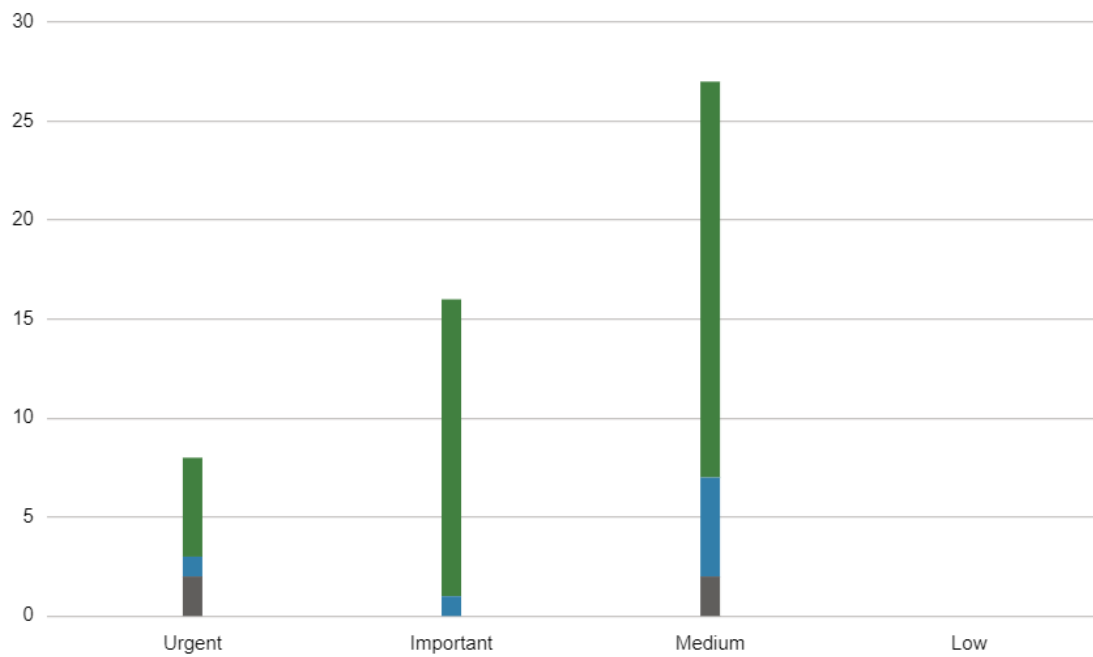| Task title	Completed by	Priority	Completed ↑	Bucket
+ Add a task				
Use google voice recognition plugin	J Jayawardhana M. U....	!	5/13	IT19063492-To do
design mobile friendly interface for the model	J Jayawardhana M. U....		5/13	IT19063492-To do
Test model using real device	J Jayawardhana M. U....		5/13	IT19063492-To do
Test Voice recognition model	JI Jayasundara J.M.I.S i...	!	5/13	IT19063492-To do
implement a model for voice recognition	JI Jayasundara J.M.I.S i...	🔔	5/13	IT19063492-To do
Implement Voice recognition model	JI Jayasundara J.M.I.S i...		5/13	IT19063492-To do
design voice recognition interfaces	JI Jayasundara J.M.I.S i...		5/13	IT19063492-To do
Design tasks interface	JI Jayasundara J.M.I.S i...		5/13	IT19063492-To do
Implement camera Interface for augment reality	JI Jayasundara J.M.I.S i...		5/13	IT19108582-To do
Design augmented reality characters	JI Jayasundara J.M.I.S i...	!	5/13	IT19108582-To do
Design objects for augmented reality	JI Jayasundara J.M.I.S i...	!	5/13	IT19108582-To do
Implement Augment reality Model	JI Jayasundara J.M.I.S i...	🔔	5/13	IT19108582-To do
Use Open CV for Unity plugin	JI Jayasundara J.M.I.S i...		5/13	IT19108582-To do

Brainy_Development_Tasks

Task title	Completed by	Priority	Completed ↑	Bucket
Test Augmented reality with device	JI Jayasundara J.M.I.S i...		5/13	IT19108582-To do
Design mobile interface for post detection	JI Jayasundara J.M.I.S i...		5/13	IT19171234-To do
Use TensorFlow libraries	JI Jayasundara J.M.I.S i...	!	5/13	IT19171234-To do
Test pose detection model	JI Jayasundara J.M.I.S i...	!	5/13	IT19171234-To do
design interface for post detection	JI Jayasundara J.M.I.S i...		5/13	IT19171234-To do
Implement post detection model	JI Jayasundara J.M.I.S i...	🔔	5/13	IT19171234-To do
Create WebSocket for python letter detection model	JI Jayasundara J.M.I.S i...	🔔	5/13	IT19053592-To do
Implement edges detection model	JI Jayasundara J.M.I.S i...	!	5/13	IT19053592-To do
Test the python model	JI Jayasundara J.M.I.S i...		5/13	IT19053592-To do
Implemet a model using python	JI Jayasundara J.M.I.S i...	🔔	5/13	IT19053592-To do
Implement interface for letter identification	JI Jayasundara J.M.I.S i...	!	5/13	IT19053592-To do
added OpenCV for unity plugin	JI Jayasundara J.M.I.S i...		5/13	IT19053592-To do
Implement Model for object detection	JI Jayasundara J.M.I.S i...	!	5/13	IT19053592-To do
Test the object detection function	JI Jayasundara J.M.I.S i...		5/13	IT19053592-To do
Design camera object	JI Jayasundara J.M.I.S i...	!	5/13	IT19053592-To do

Brainy_Development_Tasks

	Task title		Completed by	Priority	Completed ↑	Bucket
✓	Implement Model for object detection	JI	Jayasundara J.M.I.S i...	!	5/13	IT19053592-To do
✓	Test the object detection function	JI	Jayasundara J.M.I.S i...		5/13	IT19053592-To do
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✓	Create Unity Project	JI	Jayasundara J.M.I.S i...		5/13	IT19108582-To do
✓	Design characters	JI	Jayasundara J.M.I.S i...		5/13	IT19171234-To do
✓	Design characters	JI	Jayasundara J.M.I.S i...		5/13	IT19053592-To do
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✓	Create Unity Project	JI	Jayasundara J.M.I.S i...		5/13	IT19171234-To do
✓	Create branch in GitLab Project	FI	Fonseka D.W.L.K. it1...		2/25	IT19063492-To do
✓	Create branch in GitLab Project	FI	Fonseka D.W.L.K. it1...	!	2/25	IT19108582-To do
✓	Create branch in GitLab Project	FI	Fonseka D.W.L.K. it1...	!	2/25	IT19053592-To do
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✓	Create ReadMe.md file	FI	Fonseka D.W.L.K. it1...	!	2/25	IT19171234-To do
✓	Create GitLab group and project	FI	Fonseka D.W.L.K. it1...	!	2/25	IT19171234-To do

Status

11
Tasks left

- ● Not started — 4
- ● In progress — 7
- ● Late — 0
- ● Completed — 40

Bucket

Priority

5. Screenshots of MS chats and calls

Brainy
A game-based e-learning application for preschoolers

Project ID: 2022-238

Status Document - 01

Fonseka D.W.L.K
(IT19171234)

Bachelor of Science Special (Honors) Degree in
Information Technology
Department of Software Engineering

Sri Lanka Institute of Information Technology
Sri Lanka

February 2022

Brainy
A game-based e-learning application for preschoolers

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Sri Lanka Institute of Information Technology
Sri Lanka

February 2022

DECLARATION

I declare that this is my own work and this proposal does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any other university or institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgment is made in the text.

Student ID	Name
IT19171234	Fonseka D.W.L.K

Contents

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1. Gantt chart for Design & implementation

Gantt chart showing tasks across March 2022 to Nov 2022.

TASKS

- Application Design
  - Design Wire Frames
  - Interface Designing
  - Character Designing
  - Chapter Designing
  - Tasks Designing
- Implementation
  - Pose detection Module
  - Count detection Module
  - Hand guesture detection Module
  - Connect individual components
- Intregation
  - Intregrate the system
- Application Testing
  - Unit Testing
  - Intergration Testing
  - System Testing
  - Acceptance Testing
- Final Stage
  - Final Product
  - Final Document

Timeline columns: March -2022, April -2022, May -2022, June -2022, July -2022, Aug -2022, Sep -2022, Oct -2022, Nov -2022

2. Work breakdown structure

3. Project management tool
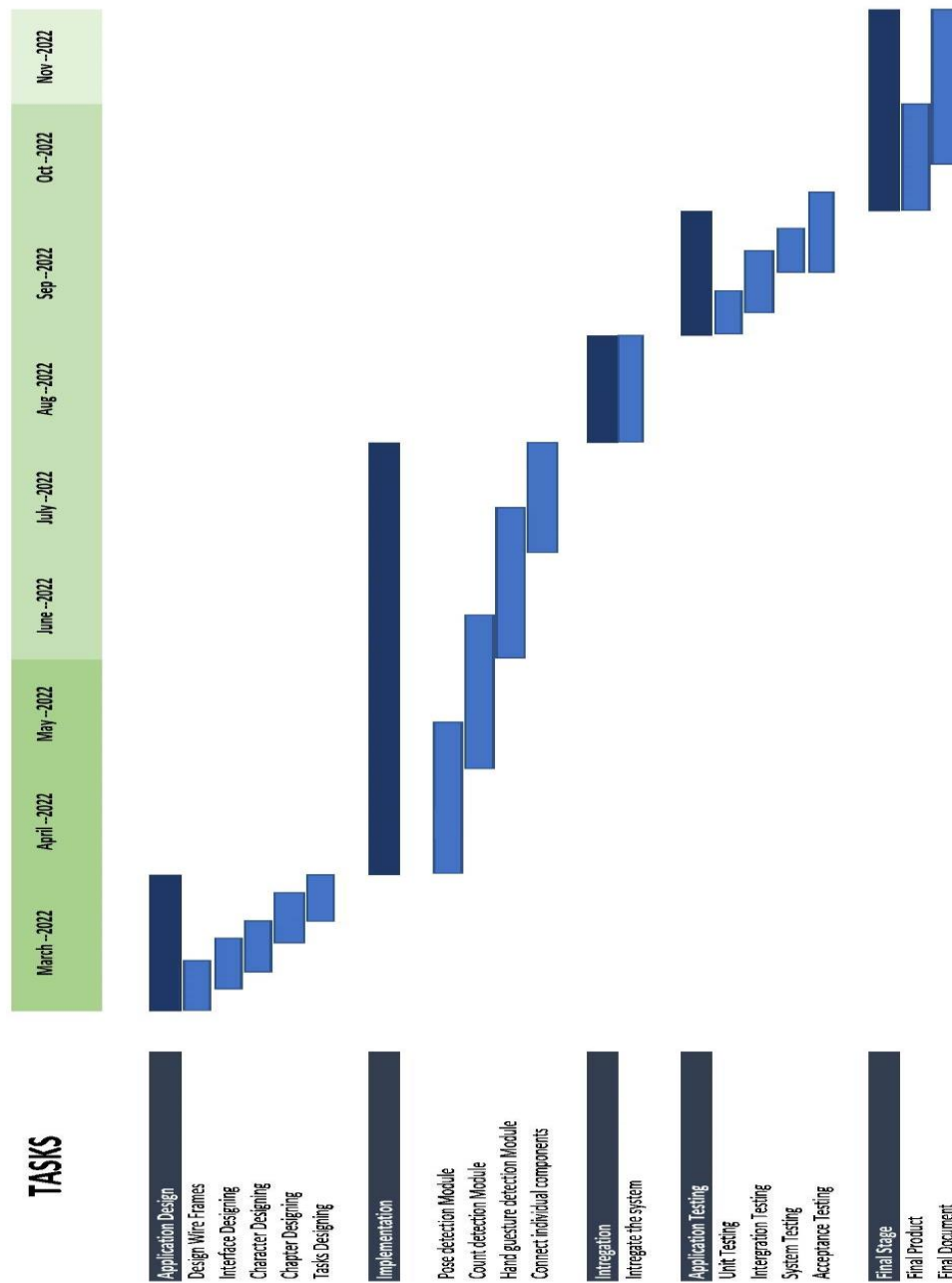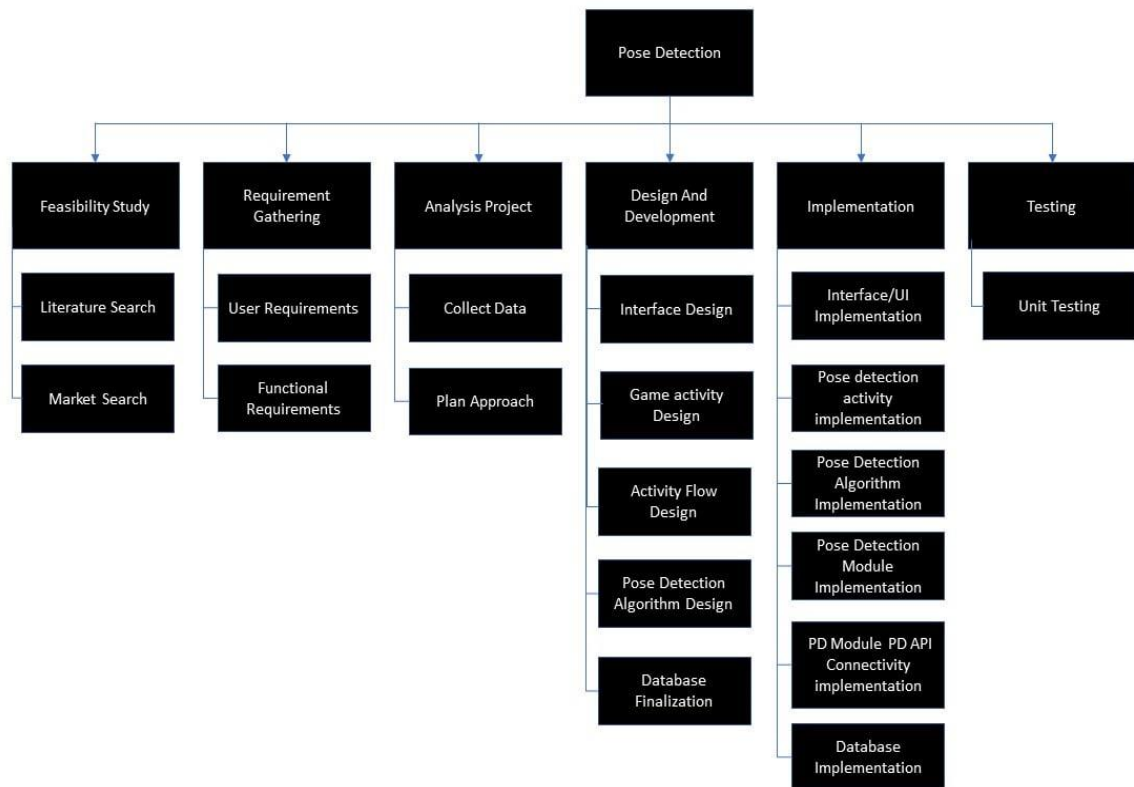
IT19171234-To do

+ Add task

Completed tasks   10   ∧

✓ ~~Use TensorFlow libraries~~

!

JI   Completed by Jayasundara J.M.I....

✓ ~~Design mobile interface for post detection~~   ...

JI   Completed by Jayasundara J.M.I....

✓ ~~Test pose detection model~~

!

JI   Completed by Jayasundara J.M.I....

✓ ~~design interface for post detection~~

JI   Completed by Jayasundara J.M.I....

✓ ~~Implement post detection model~~

IT19171234-To do

+ Add task

☑ ~~Implement post detection model~~
📢

(JI) Completed by Jayasundara J.M.I....

☑ ~~Design characters~~

(JI) Completed by Jayasundara J.M.I....

☑ ~~Create Unity Project~~   ...

(JI) Completed by Jayasundara J.M.I....

☑ ~~Create branch in GitLab Project~~
❗

Completed by Fonseka D.W.L.K. i...

☑ ~~Create ReadMe.md file~~
❗

IT19171234-To do

+ Add task

✓ ~~Create Unity Project~~

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Completed by Fonseka D.W.L.K. i...

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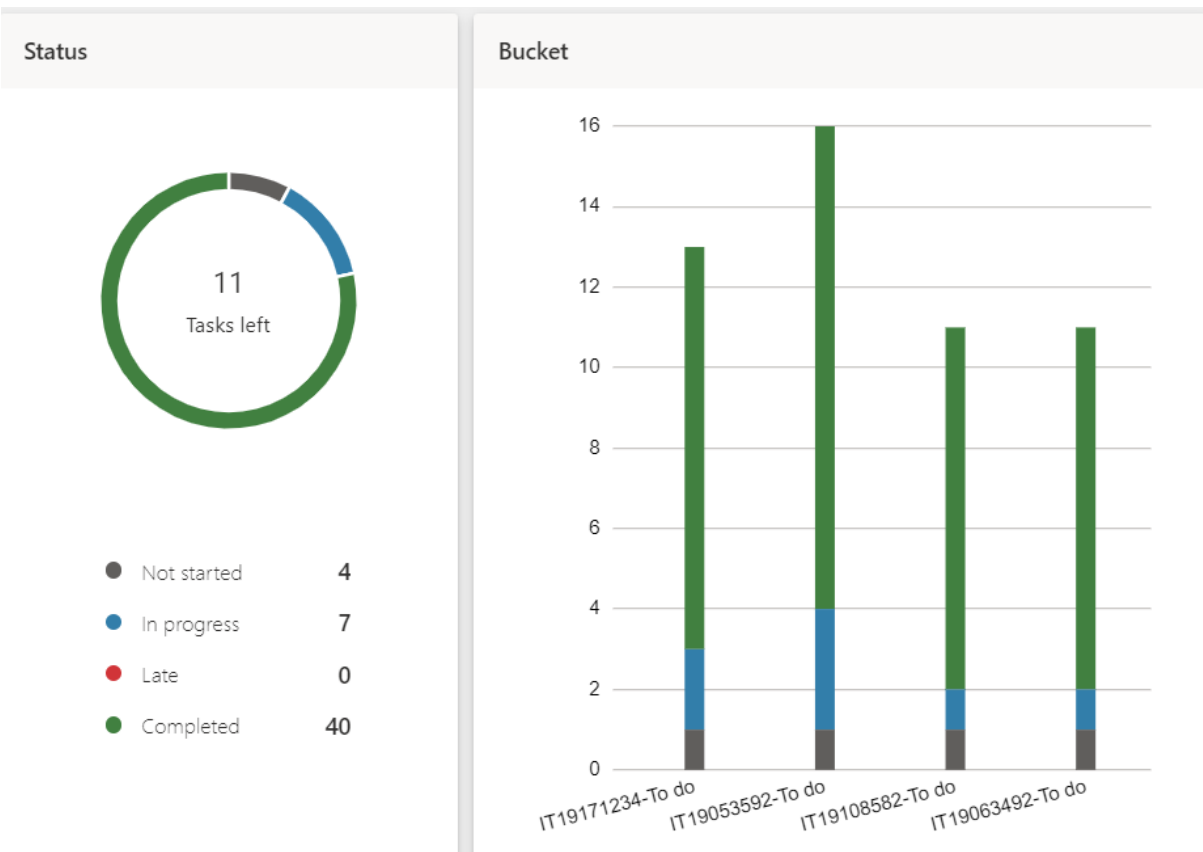Completed by Fonseka D.W.L.K. i...

✓ ~~Create GitLab group and project~~

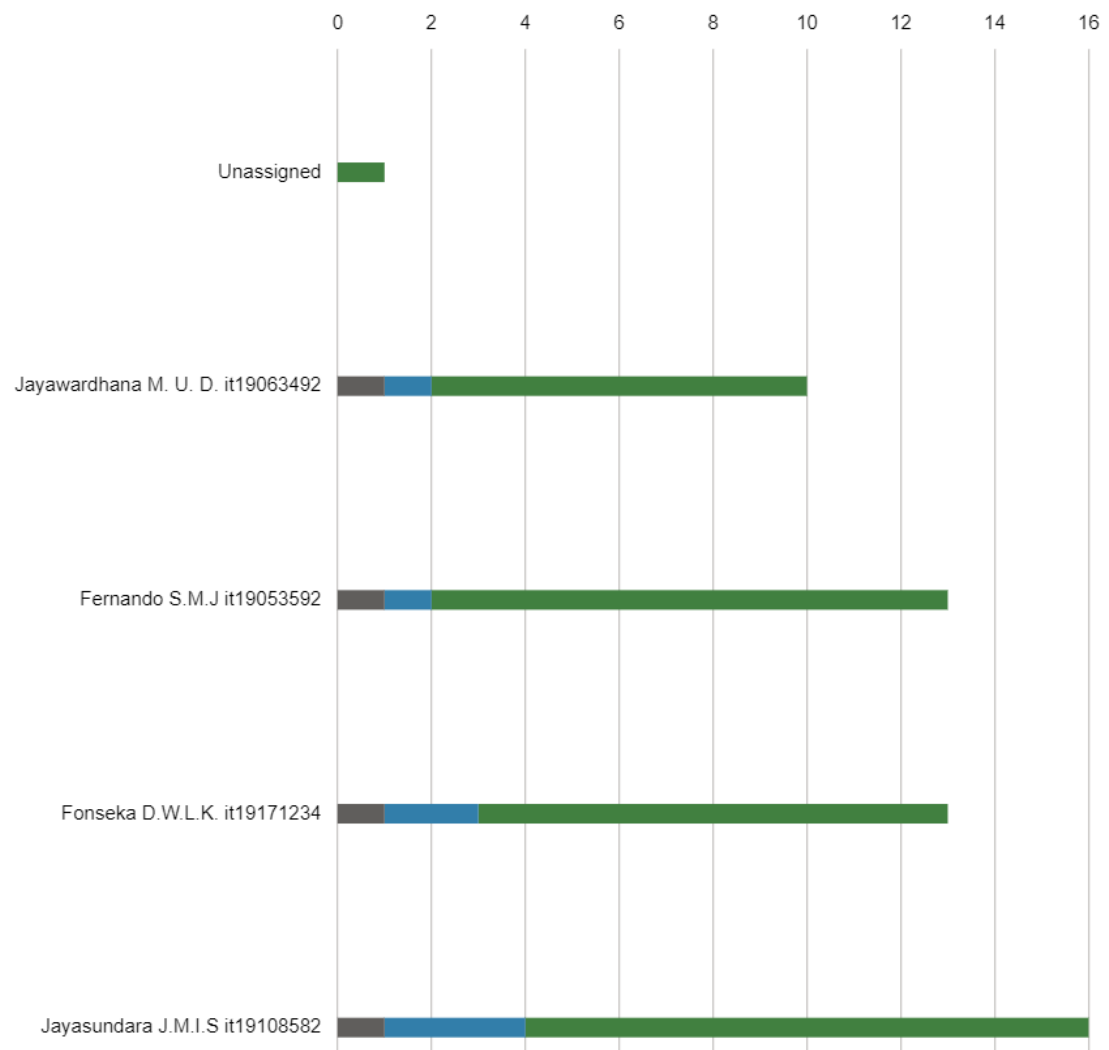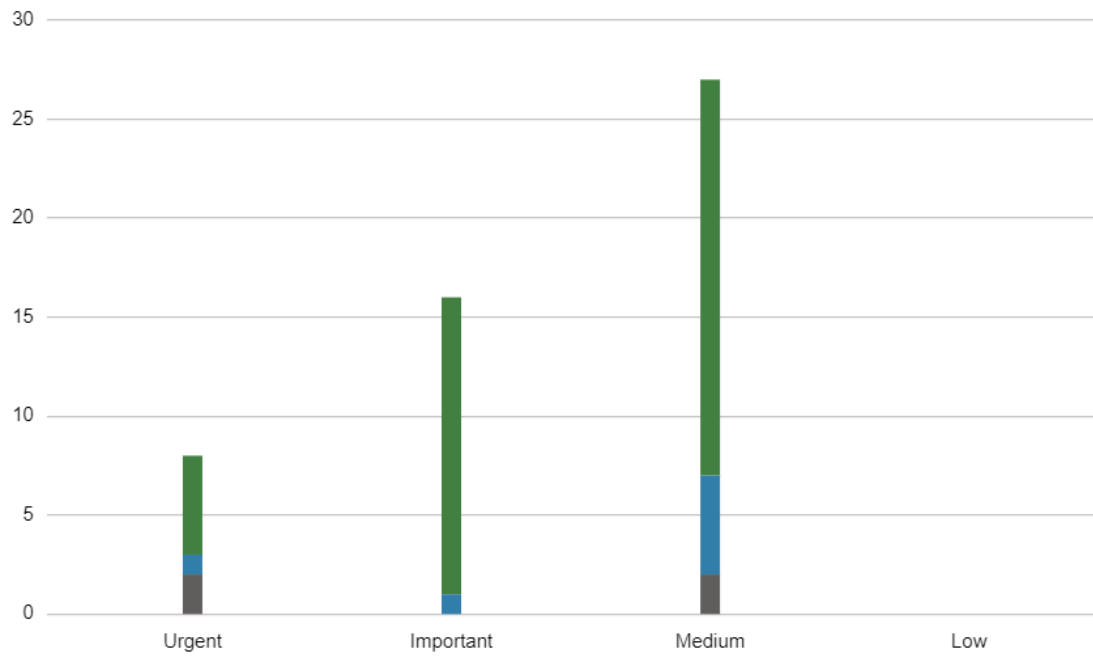!

Completed by Fonseka D.W.L.K. i...

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Status

11
Tasks left

- Not started — 4
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Bucket

Priority

	30				
	25				
	20				
	15				
	10				
	5				
	0	Urgent	Important	Medium	Low

	0	2	4	6	8	10	12	14	16
Unassigned									
Jayawardhana M. U. D. it19063492									
Fernando S.M.J it19053592									
Fonseka D.W.L.K. it19171234									
Jayasundara J.M.I.S it19108582									

5. Screenshots of MS chats and calls