
**Sri Lanka Institute of Information Technology**

# E-LEARNING SYSTEM FOR HEARING IMPAIRED STUDENTS

Project ID : 2021-176

**STATUS DOCUMENT**

**Student Name: Pirathikaran Vadiveswaran**

**Student ID: IT18068610**

## Group Details

**Supervisor -** Mrs. Kalpani Manathunga

**Co- Supervisor -** Mrs. Samanthi Siriwardana

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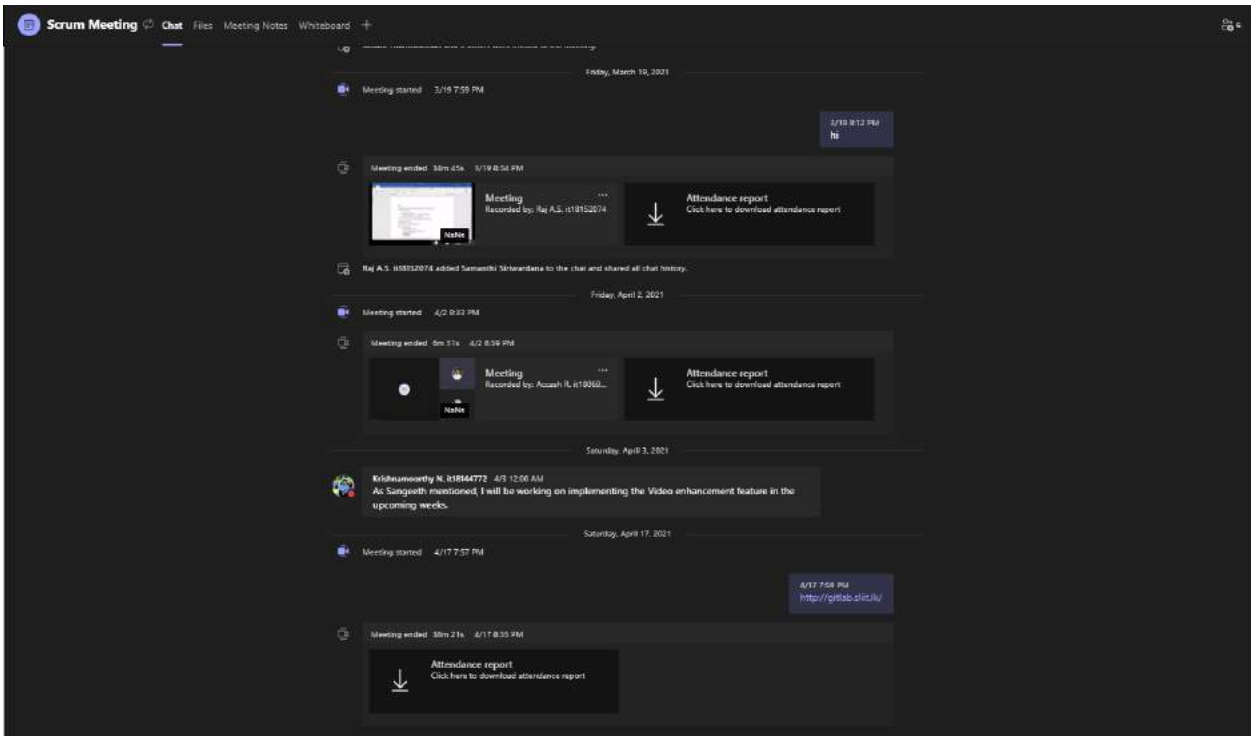
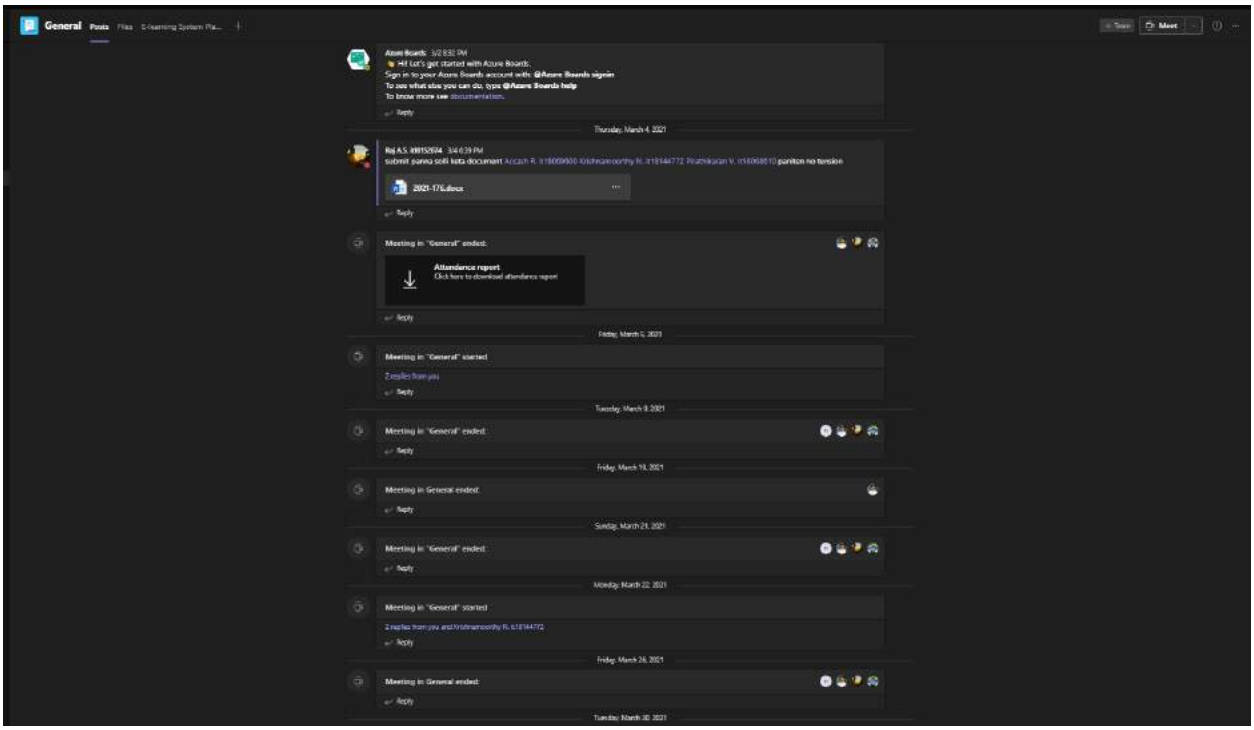
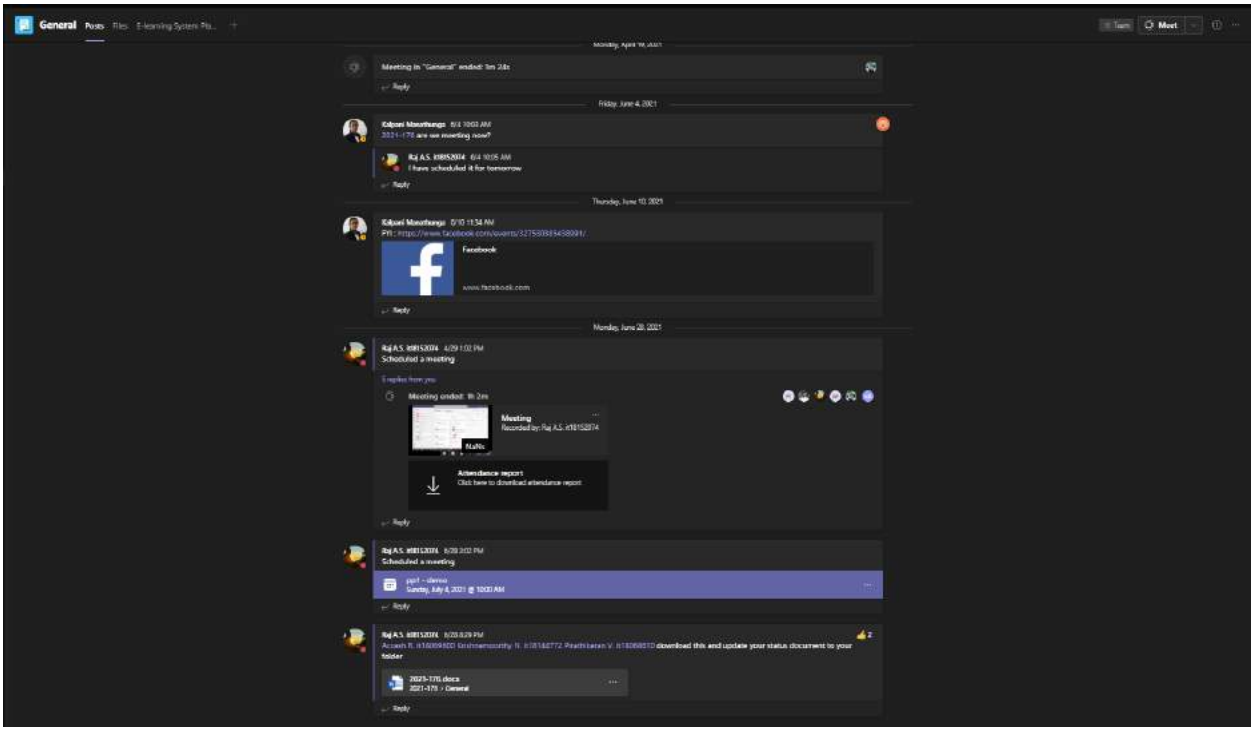
# Contents

# 1. Screenshots of MS Teams meeting

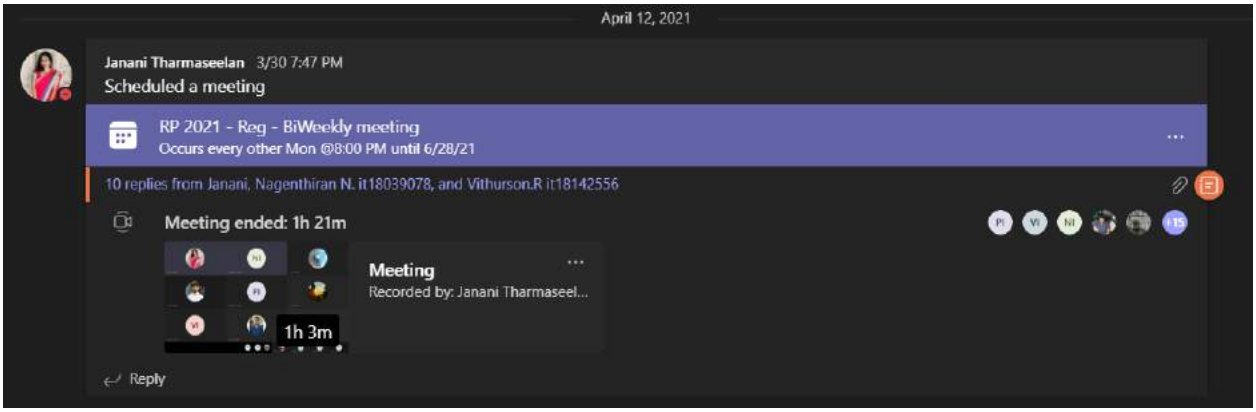
## 1.1 Weekly Scrum Meeting



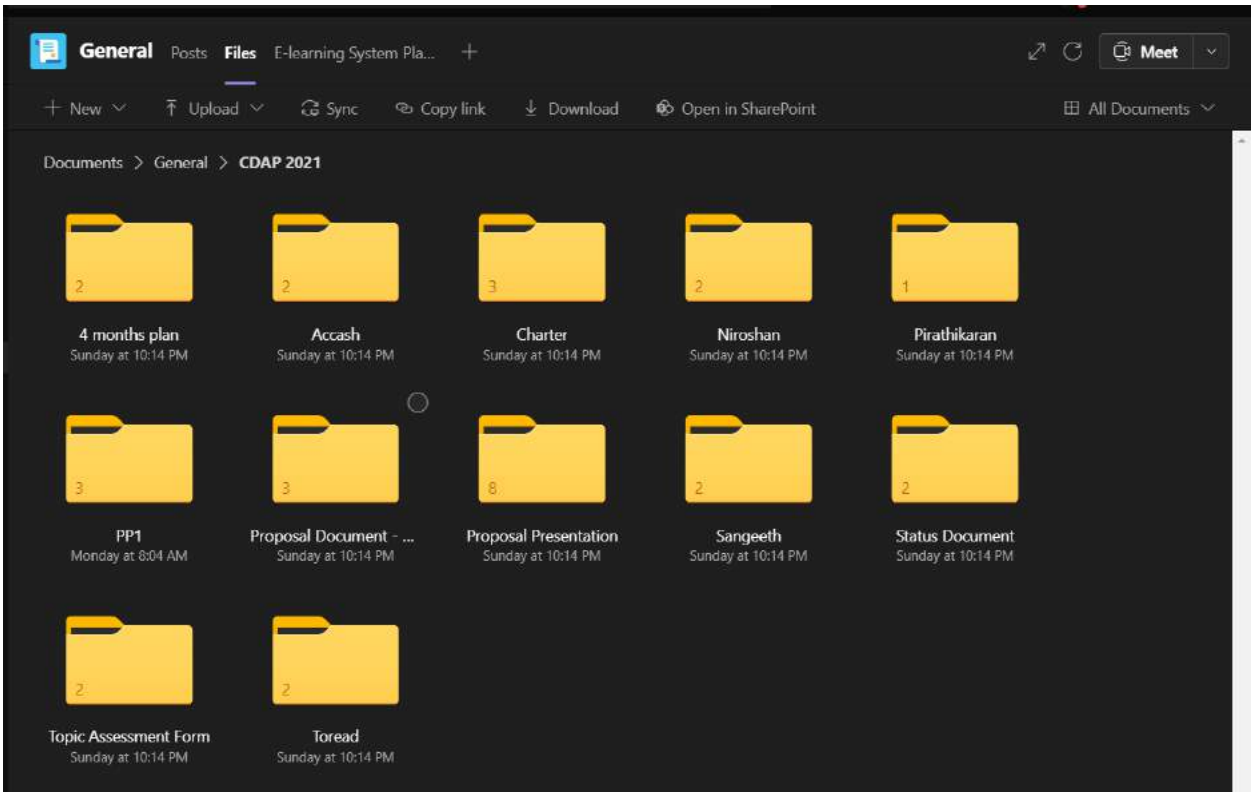





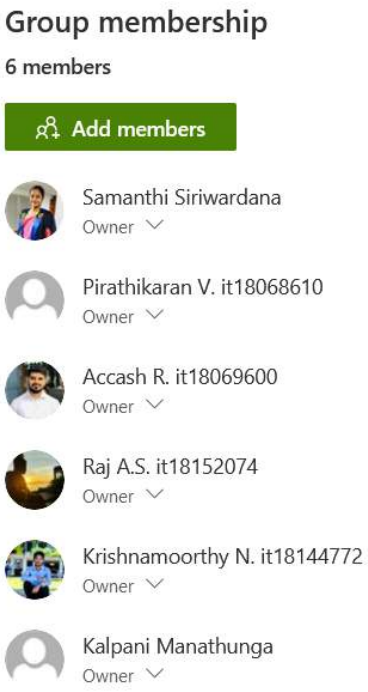

## 1.2 Bi-Weekly Scrum Meeting with Supervisor and other teams



## 1.3 Shared Documents

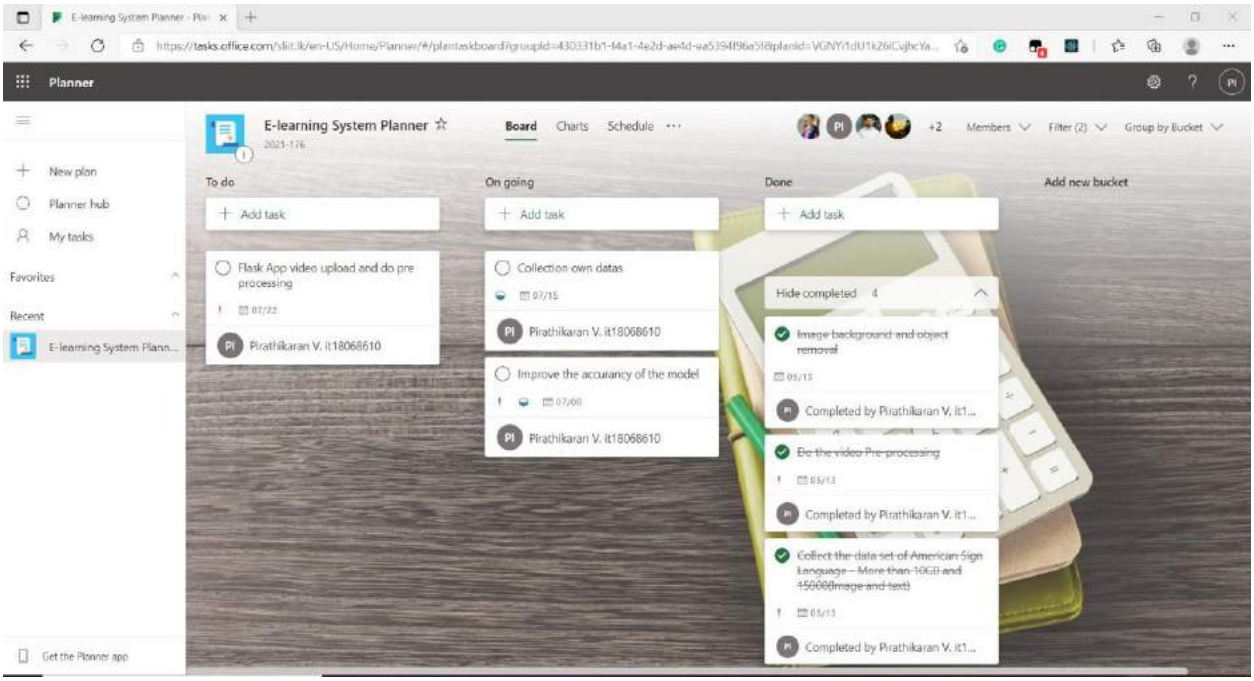


## 1.4 Team members and superiors

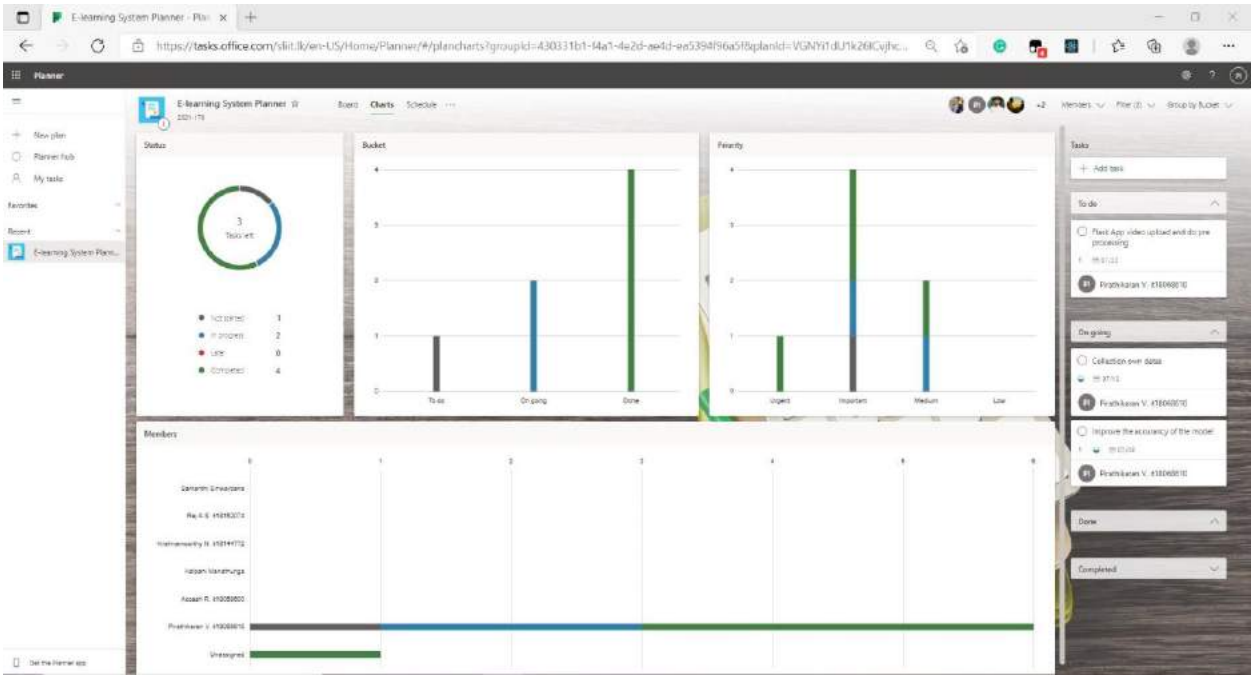


# 2. Screenshots of Planner

## 2.1 Bucket Plan

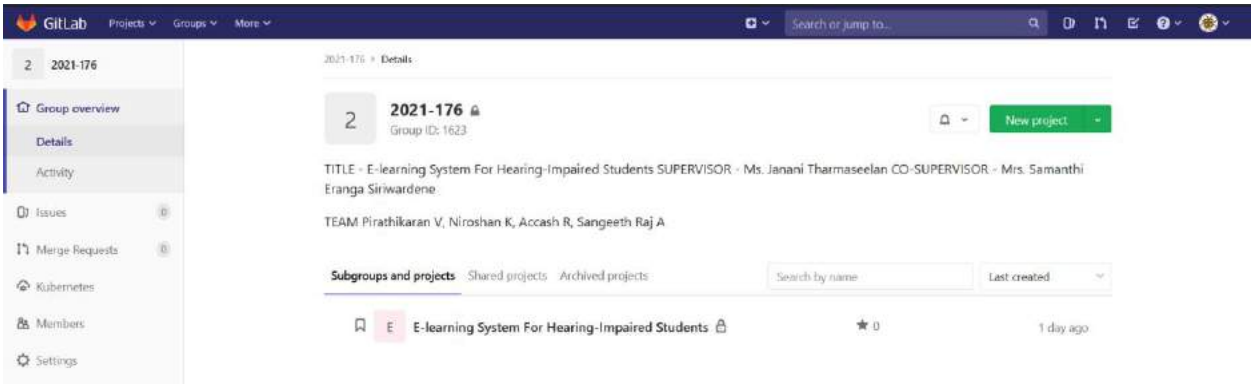



## 2.2 Chart Overview

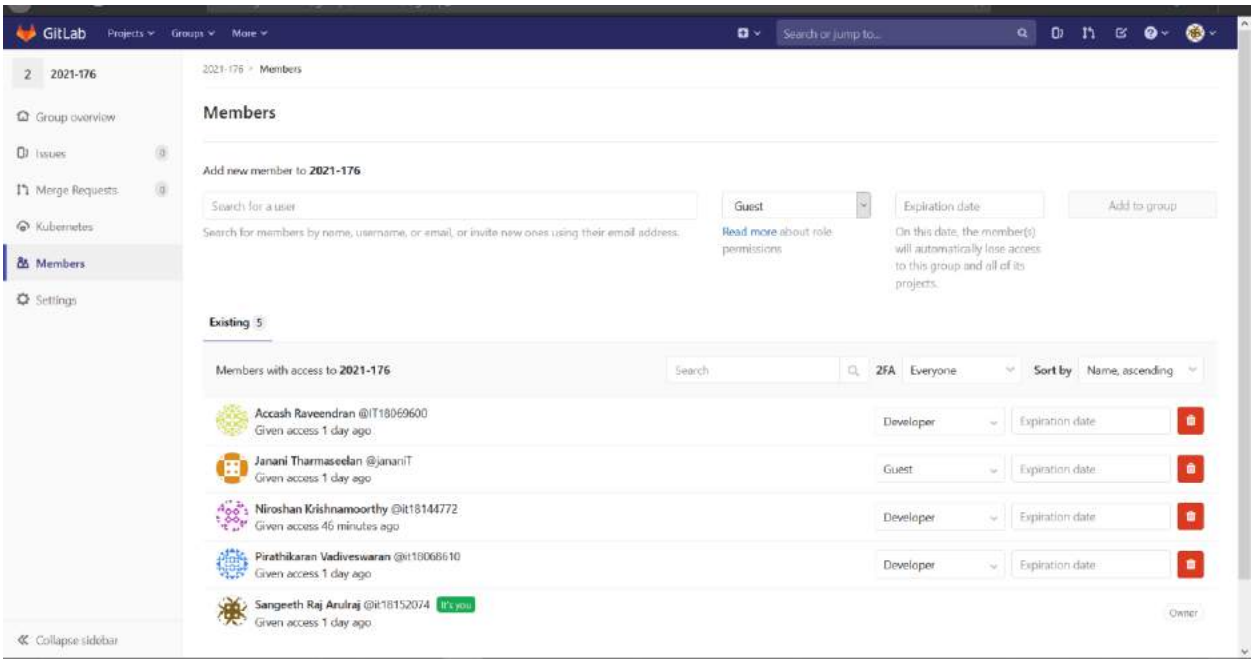


# 3. Screenshots of GitLab

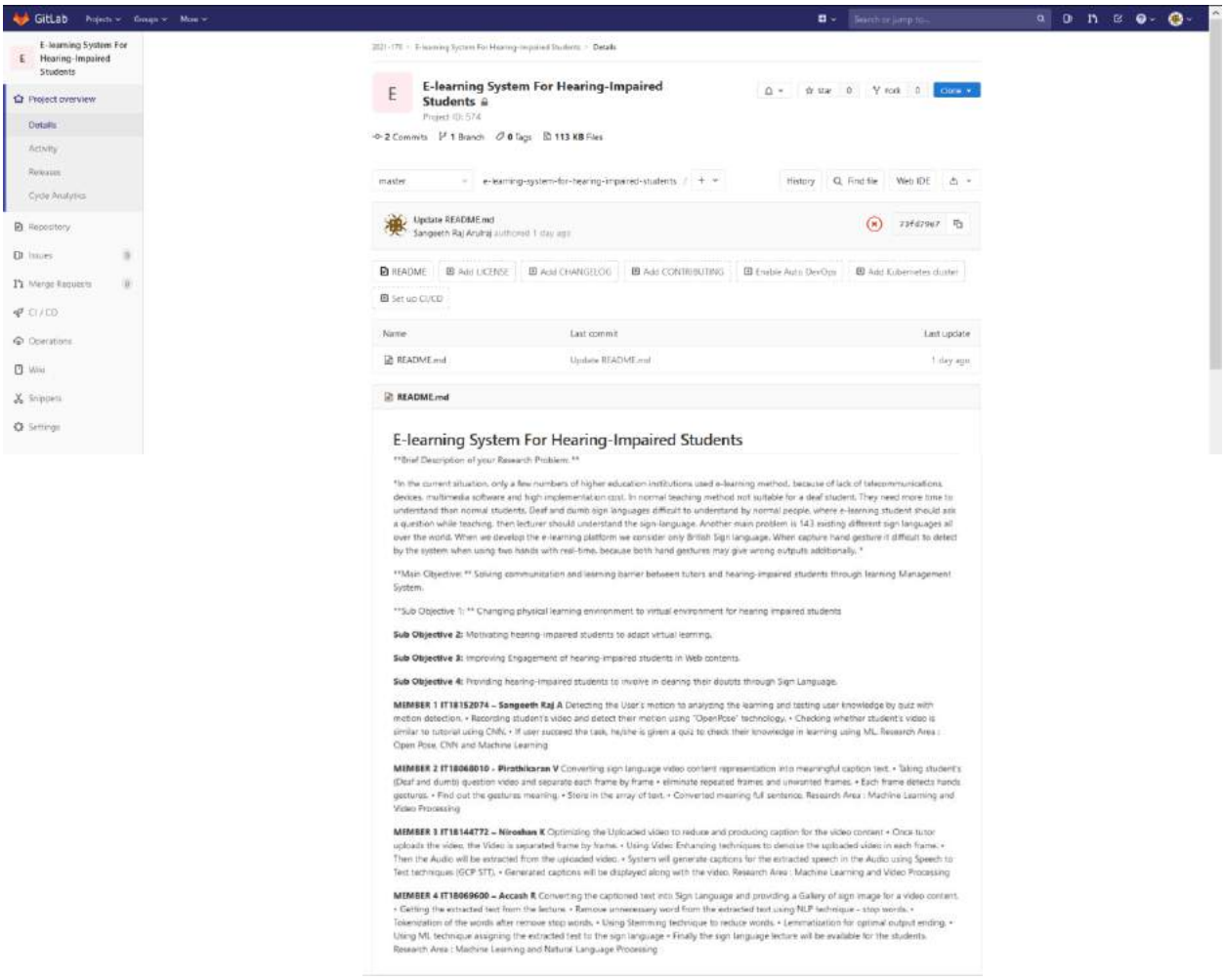
## 3.1 Group



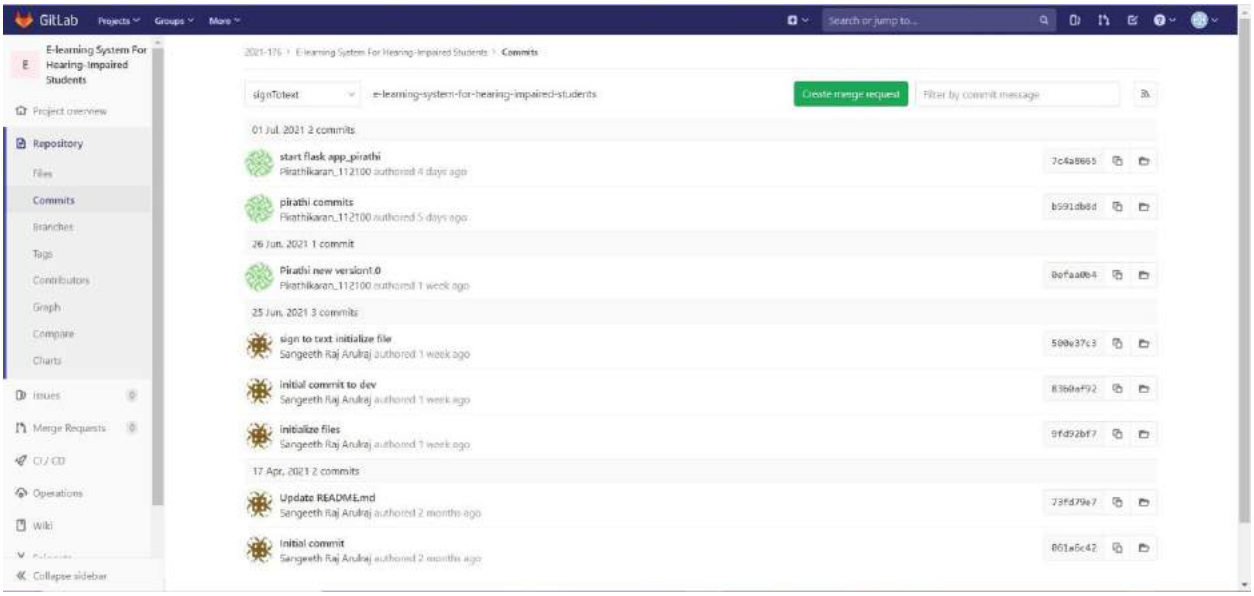

## 3.2 Members

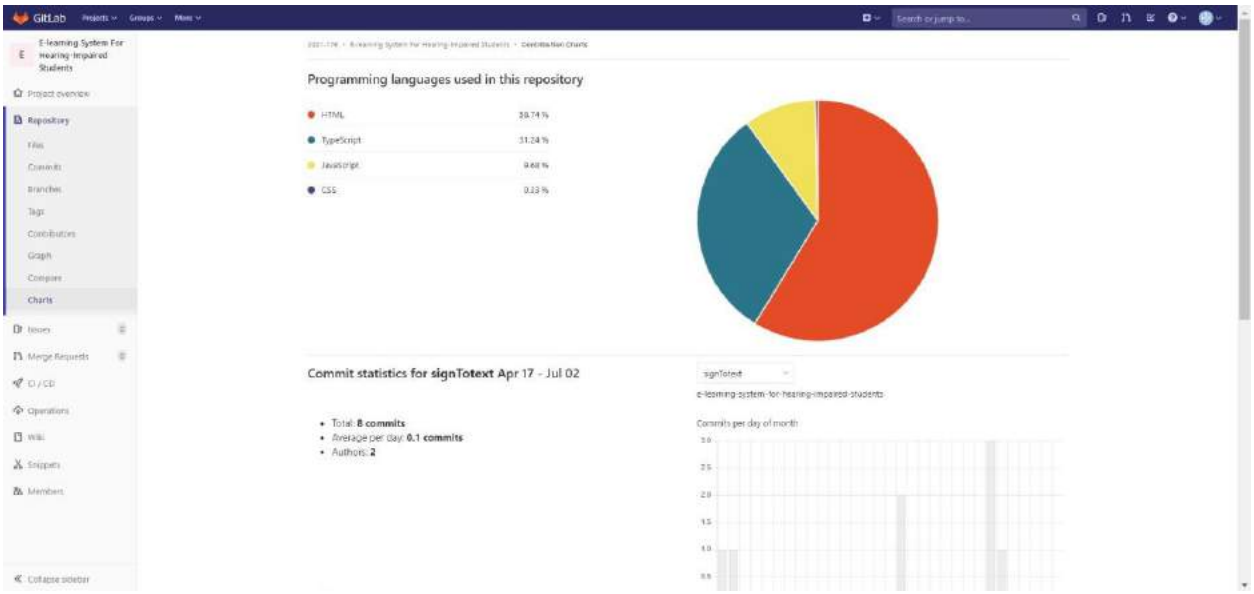


## 3.3 Project

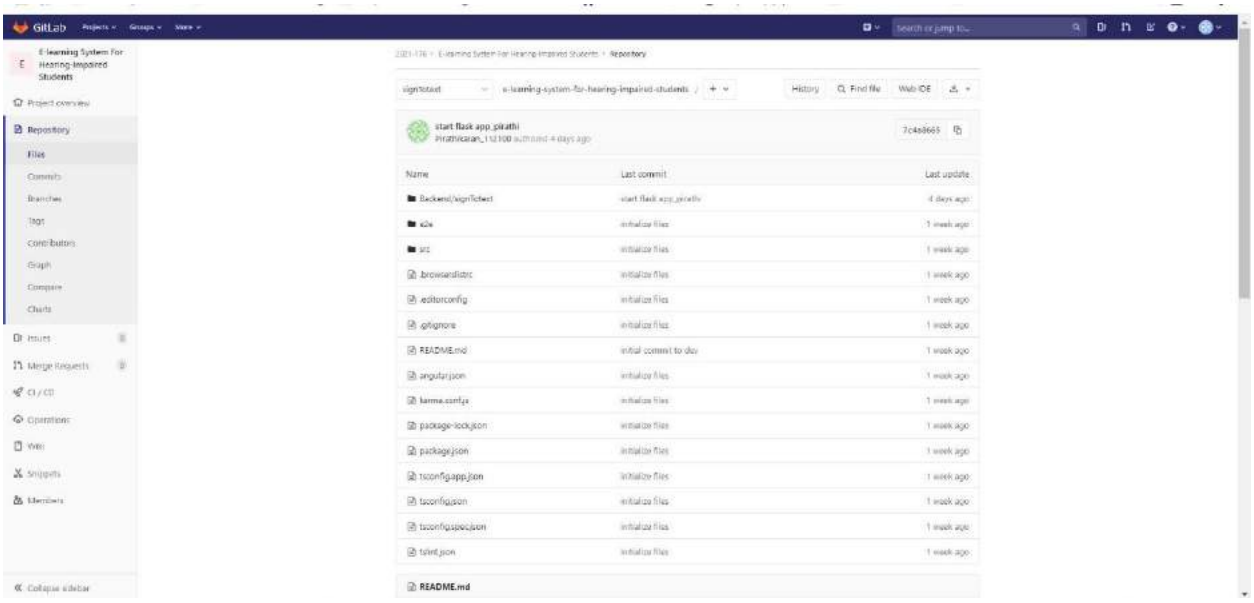

GitLab
E-learning System For Hearing-Impaired Students
Project overview
Details
Activity
Releases
Cycle Analytics
Repository
Issues
Merge Requests
CI / CD
Operations
Wiki
Snippets
Settings
E-learning System For Hearing-Impaired Students
Project ID: 574
2 Commits
1 Branch
0 Tags
113 KB Files
master
e-learning-system-for-hearing-impaired-students
History
Find file
Web IDE
Update README.md
Sangeeth Raj Arulraj authored 1 day ago
73f879e7
README
Add LICENSE
Add CHANGELOG
Add CONTRIBUTING
Enable Auto DevOps
Add Kubernetes cluster
Set up CI/CD
Name
Last commit
Last update
README.md
Update README.md
1 day ago
README.md
E-learning System For Hearing-Impaired Students
**Brief Description of your Research Problem:**
*In the current situation, only a few numbers of higher education institutions used e-learning method, because of lack of telecommunications devices, multimedia software and high implementation cost. In normal teaching method not suitable for a deaf student. They need more time to understand than normal students. Deaf and dumb sign languages difficult to understand by normal people, where e-learning student should ask a question while teaching, then lecturer should understand the sign-language. Another main problem is 143 existing different sign languages all over the world. When we develop the e-learning platform we consider only British Sign language. When capture hand gesture it difficult to detect by the system when using two hands with real-time, because both hand gestures may give wrong outputs additionally.*
**Main Objective:** Solving communication and learning barrier between tutors and hearing-impaired students through learning Management System.
**Sub Objective 1:** ** Changing physical learning environment to virtual environment for hearing impaired students
**Sub Objective 2:** Motivating hearing-impaired students to adapt virtual learning.
**Sub Objective 3:** Improving Engagement of hearing-impaired students in Web contents.
**Sub Objective 4:** Providing hearing-impaired students to involve in clearing their doubts through Sign Language.
**MEMBER 1 IT18152074 – Sangeeth Raj A** Detecting the User's motion to analyzing the learning and testing user knowledge by quiz with motion detection. • Recording student's video and detect their motion using "OpenPose" technology. • Checking whether student's video is similar to tutorial using CNN. • If user succeed the task, he/she is given a quiz to check their knowledge in learning using ML. Research Area : Open Pose, CNN and Machine Learning
**MEMBER 2 IT18068010 - Pirothkaran V** Converting sign language video content representation into meaningful caption text. • Taking student's (Deaf and dumb) question video and separate each frame by frame • eliminate repeated frames and unwanted frames. • Each frame detects hands gestures. • Find out the gestures meaning. • Store in the array of text. • Converted meaning full sentence. Research Area : Machine Learning and Video Processing
**MEMBER 3 IT18144772 – Niroshan K** Optimizing the Uploaded video to reduce and producing caption for the video content • Once tutor uploads the video, the Video is separated frame by frame. • Using Video Enhancing techniques to denoise the uploaded video in each frame. • Then the Audio will be extracted from the uploaded video. • System will generate captions for the extracted speech in the Audio using Speech to Text techniques (GCP STT). • Generated captions will be displayed along with the Video. Research Area : Machine Learning and Video Processing
**MEMBER 4 IT18069600 – Accash R** Converting the captioned text into Sign Language and providing a Gallery of sign image for a video content. • Getting the extracted text from the lecture. • Remove unnecessary word from the extracted text using NLP technique – stop words. • Tokenization of the words after remove stop words. • Using Stemming technique to reduce words. • Lemmatization for optimal output ending. • Using ML technique assigning the extracted test to the sign language • Finally the sign language lecture will be available for the students. Research Area : Machine Learning and Natural Language Processing

## 3.4 GitLab Commits



## 3.5 GitLab Folder Structure



# 4. Diagram

## 4.1 Gantt Chart

| Task Name | January | February | March | April | May | June | July | August | September | October | November | December |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Initiation | | | | | | | | | | | | |
| Evalation | | | | | | | | | | | | |
| Topic Assessment form | | | | | | | | | | | | |
| Charter | | | | | | | | | | | | |
| Proposal document | | | | | | | | | | | | |
| Proposal presentation | | | | | | | | | | | | |
| Project planning | | | | | | | | | | | | |
| System planning | | | | | | | | | | | | |
| Collecting required data | | | | | | | | | | | | |
| Selecting Algoritham techonologies and tools | | | | | | | | | | | | |
| Implementation | | | | | | | | | | | | |
| Video pre-processing | | | | | | | | | | | | |
| Skin segmentation | | | | | | | | | | | | |
| Feature Extracting | | | | | | | | | | | | |
| Classification and Text convert | | | | | | | | | | | | |
| Fine tune text NLP | | | | | | | | | | | | |
| exprimental analysis | | | | | | | | | | | | |
| Testing and finalize | | | | | | | | | | | | |
| Research paper | | | | | | | | | | | | |
| Testing | | | | | | | | | | | | |
| Final report | | | | | | | | | | | | |
| Final evaluation | | | | | | | | | | | | |

## 4.2 Work-Break Down Chart