



Sri Lanka Institute of Information Technology

E-LEARNING SYSTEM FOR HEARING IMPAIRED STUDENTS

Project ID : 2021-176

STATUS DOCUMENT

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Student ID: IT18068610

Group Details

Supervisor - Mrs. Kalpani Manathunga

Co- Supervisor - Mrs. Samantha Siriwardana

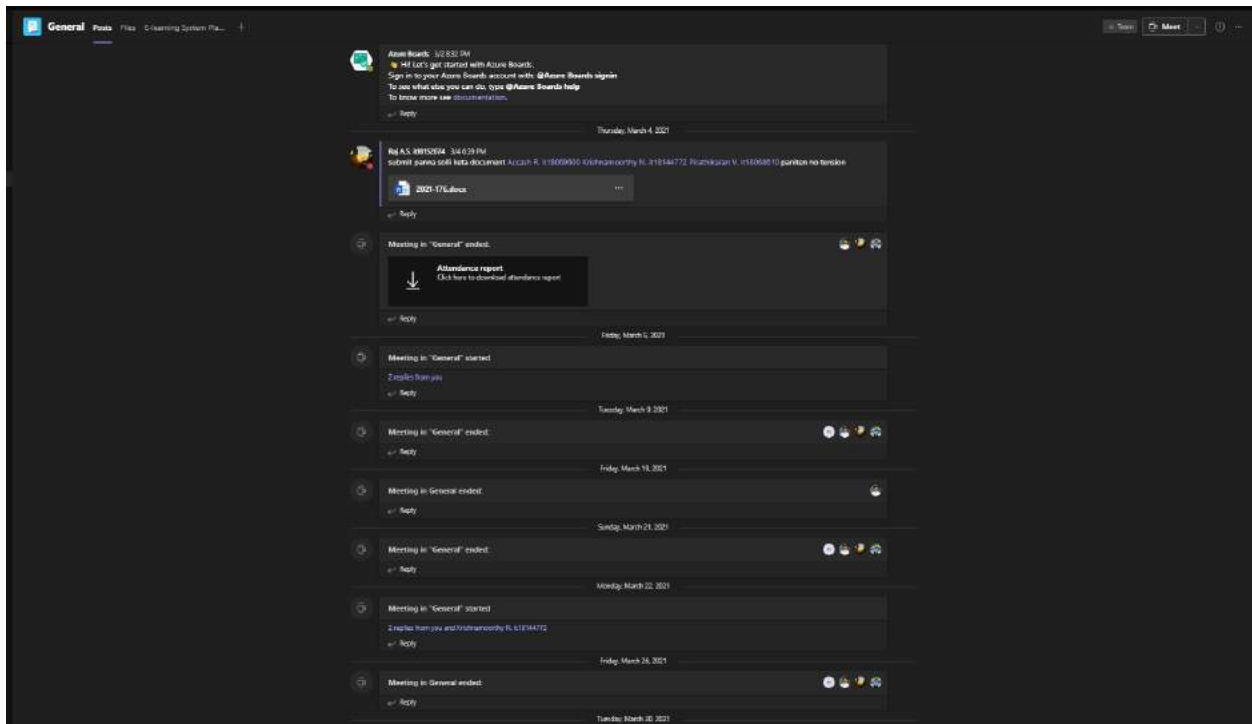
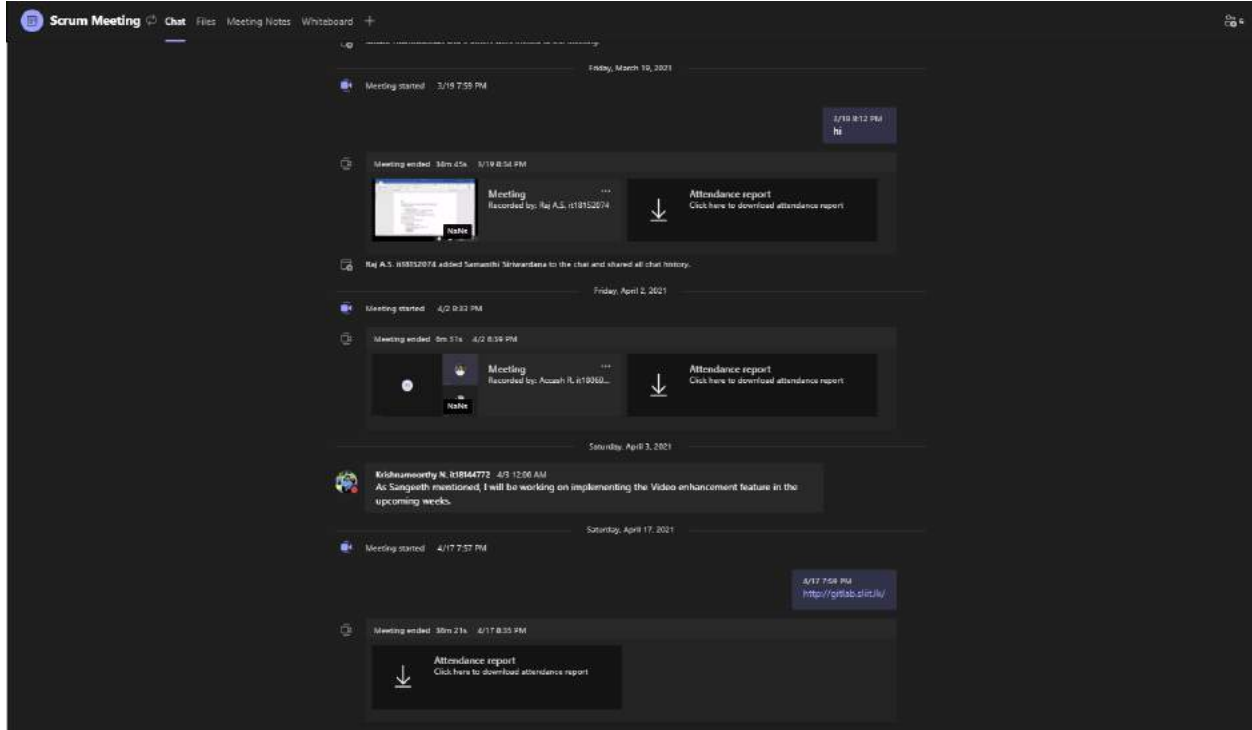
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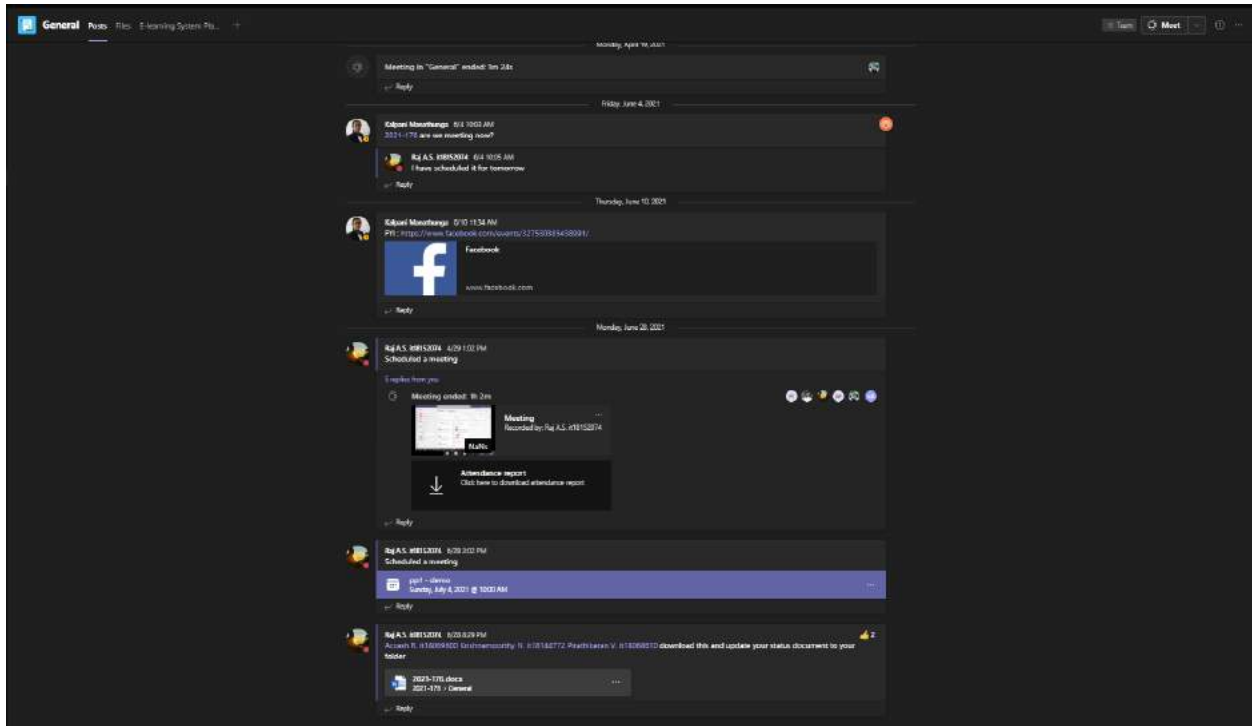
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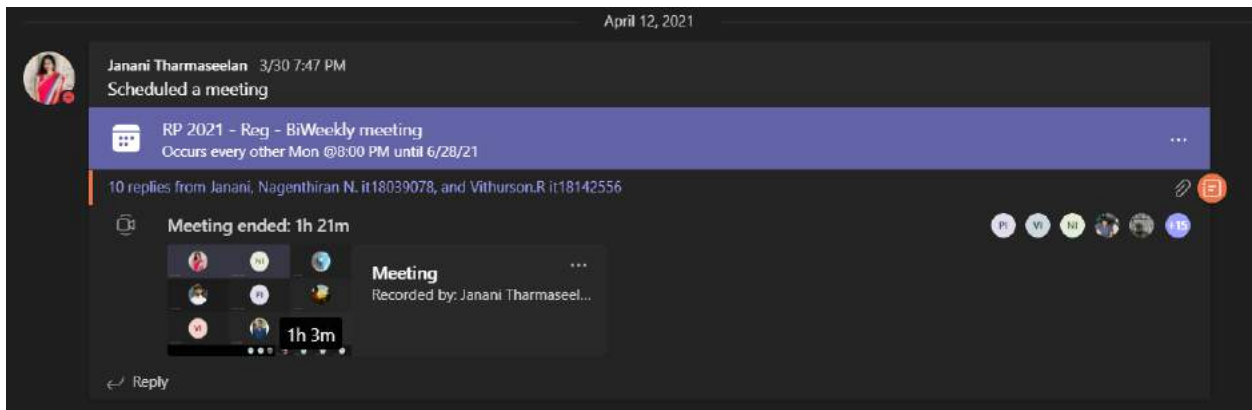
1. Screenshots of MS Teams meeting

1.1 Weekly Scrum Meeting

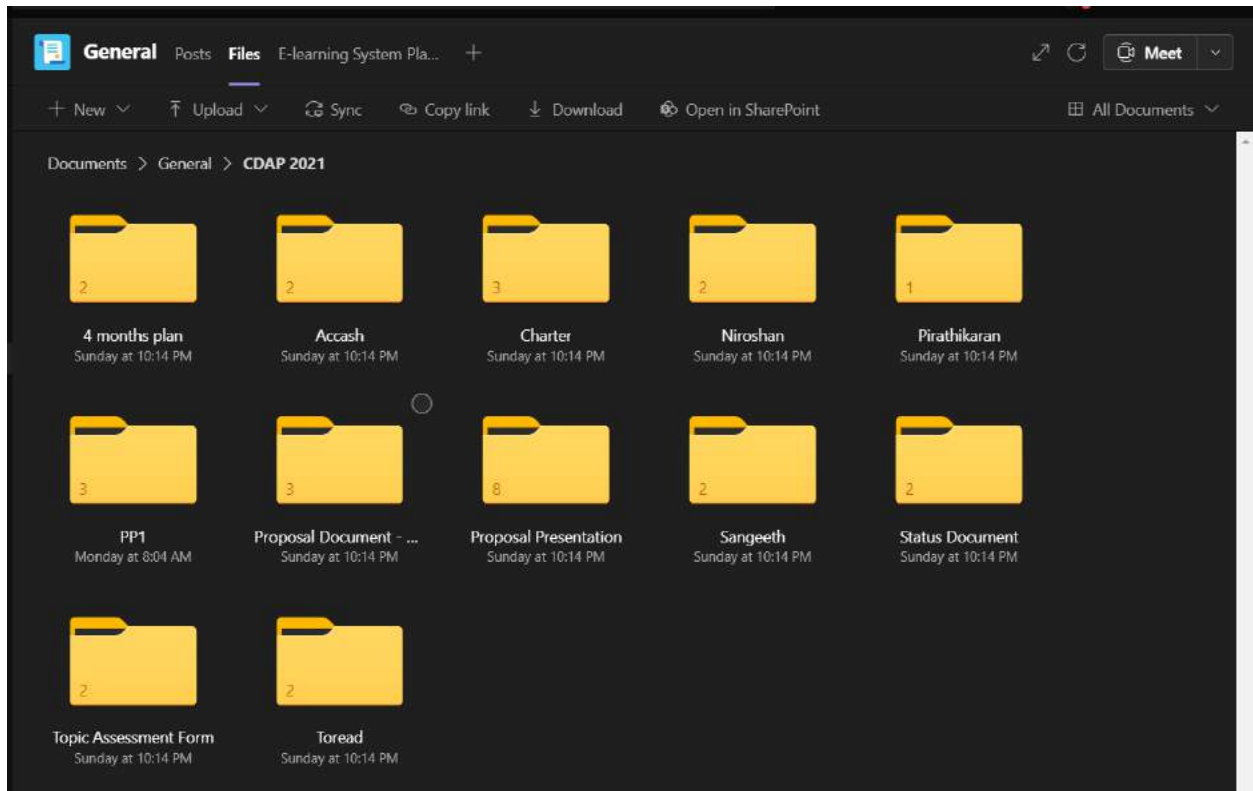




1.2 Bi-Weekly Scrum Meeting with Supervisor and other teams



1.3 Shared Documents



1.4 Team members and superiors

Group membership

6 members

 Add members



Samanthi Siriwardana
Owner



Pirathikaran V. it18068610
Owner



Accash R. it18069600
Owner



Raj A.S. it18152074
Owner



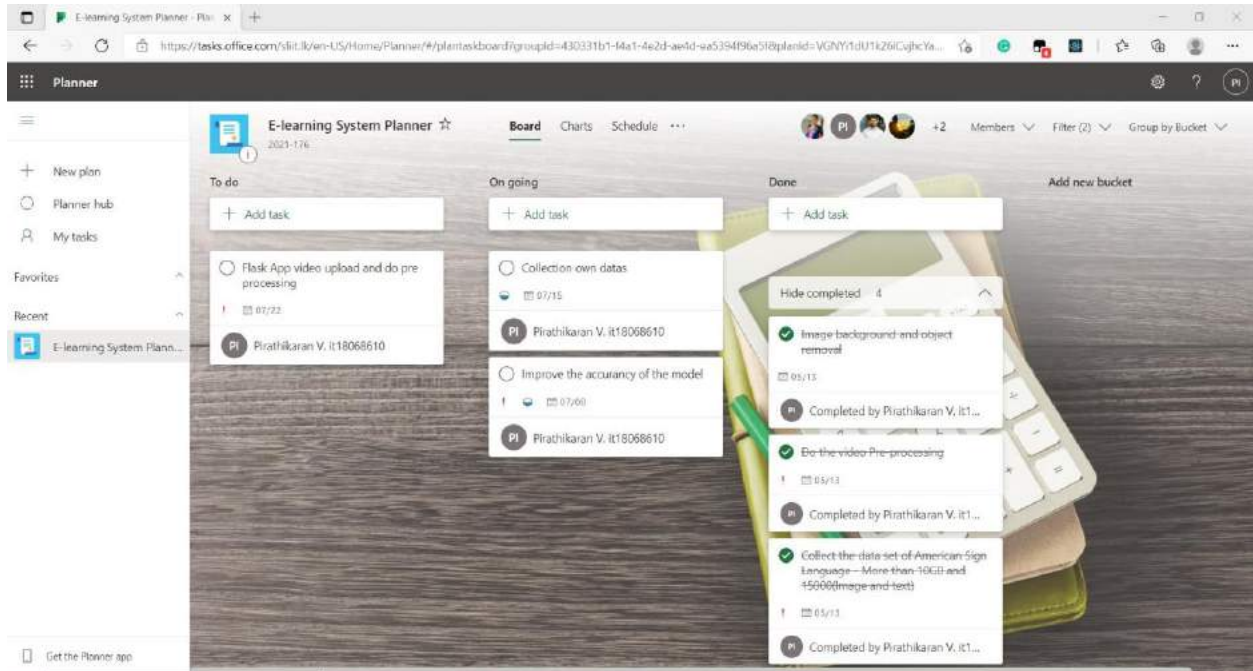
Krishnamoorthy N. it18144772
Owner



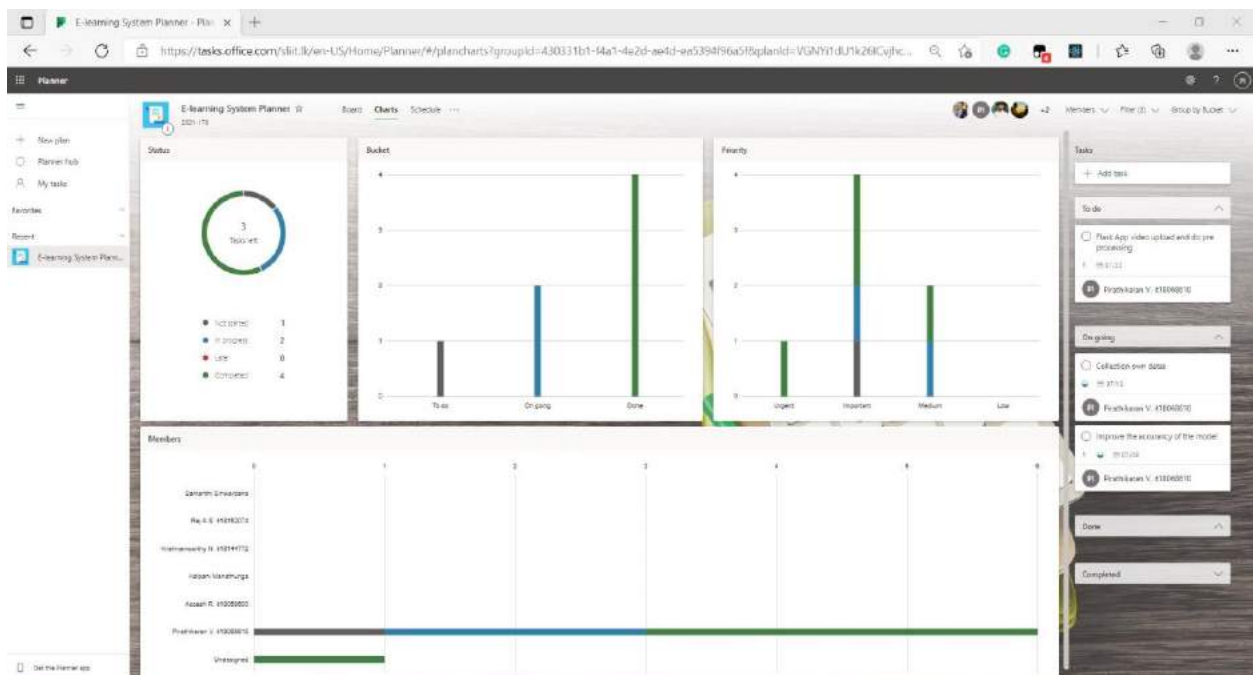
Kalpani Manathunga
Owner

2. Screenshots of Planner

2.1 Bucket Plan

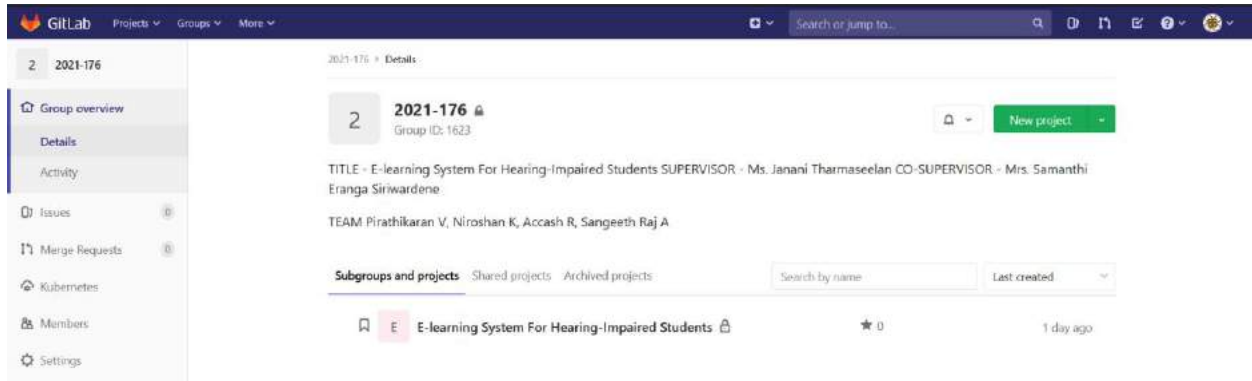


2.2 Chart Overview

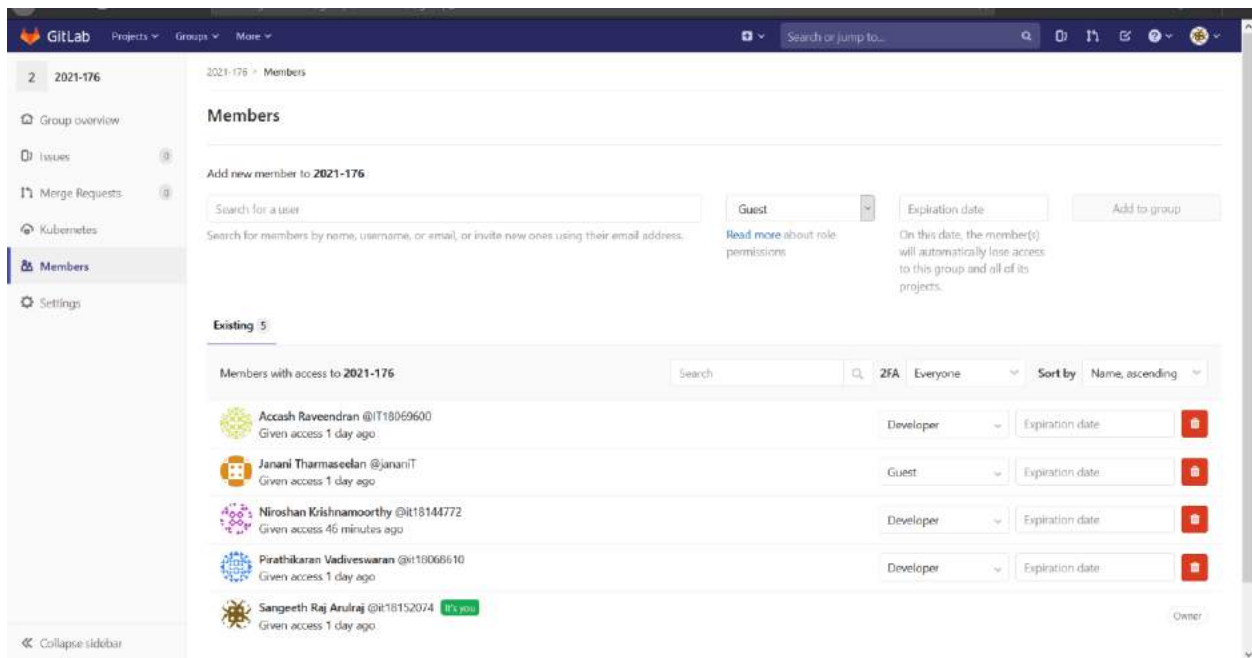


3. Screenshots of GitLab

3.1 Group



3.2 Members



3.3 Project

The screenshot shows a GitLab repository page for a project titled "E-learning System For Hearing-Impaired Students". The page includes a sidebar with navigation options like "Project overview", "Details", "Activity", "Releases", "Cycle Analytics", "Repository", "Issues", "Merge Requests", "CI/CD", "Operations", "Wiki", "Snippets", and "Settings". The main content area displays the repository name, project ID (574), and a recent commit by Sangeeth Raj Anuraj. Below the commit information, there are buttons for "README", "LICENSE", "CHANGLOG", "CONTRIBUTING", "DevOps", and "Kubernetes cluster". A table lists the repository files, with "README.md" being the most recent update. The "README.md" content is displayed below, detailing the project's purpose, objectives, and member contributions.

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 telecommunication 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 that 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 adopt 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 IT18060010 - Prathikaran 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 sentences. 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 technique (GCP STT). • Generated captions will be displayed along with the video. Research Area : Machine Learning and Video Processing

MEMBER 4 IT18060020 – Accash B 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 text 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

The screenshot shows the GitLab interface for the repository 'E-learning System For Hearing-Impaired Students'. The left sidebar contains navigation options: Project overview, Repository (Files, Commits, Branches, Tags, Contributors, Graph, Compare, Charts), Issues, Merge Requests, CI/CD, Operations, Wiki, and Collapse sidebar. The main content area displays a list of commits for the 'signTotext' branch. At the top, there is a search bar and a 'Create merge request' button. The commit list includes:

- 01 Jul, 2021 2 commits
- start flask app_pirathi (7c42865) by Pirathikaran_112100, 4 days ago
- pirathi commits (b591db6) by Pirathikaran_112100, 5 days ago
- 26 Jun, 2021 1 commit
- Pirathi new version! 0 (9cfaa084) by Pirathikaran_112100, 1 week ago
- 25 Jun, 2021 3 commits
- sign to text initialize file (599b37c3) by Sangeeth Raj Anuraj, 1 week ago
- Initial commit to dev (8360e792) by Sangeeth Raj Anuraj, 1 week ago
- initialize files (9fd92bf7) by Sangeeth Raj Anuraj, 1 week ago
- 17 Apr, 2021 2 commits
- Update README.md (73fd79e7) by Sangeeth Raj Anuraj, 2 months ago
- Initial commit (601a6c42) by Sangeeth Raj Anuraj, 2 months ago

The screenshot shows the 'Charts' section of the GitLab interface for the repository 'E-learning System For Hearing-Impaired Students'. The left sidebar is the same as in the previous screenshot. The main content area displays two charts:

Programming languages used in this repository

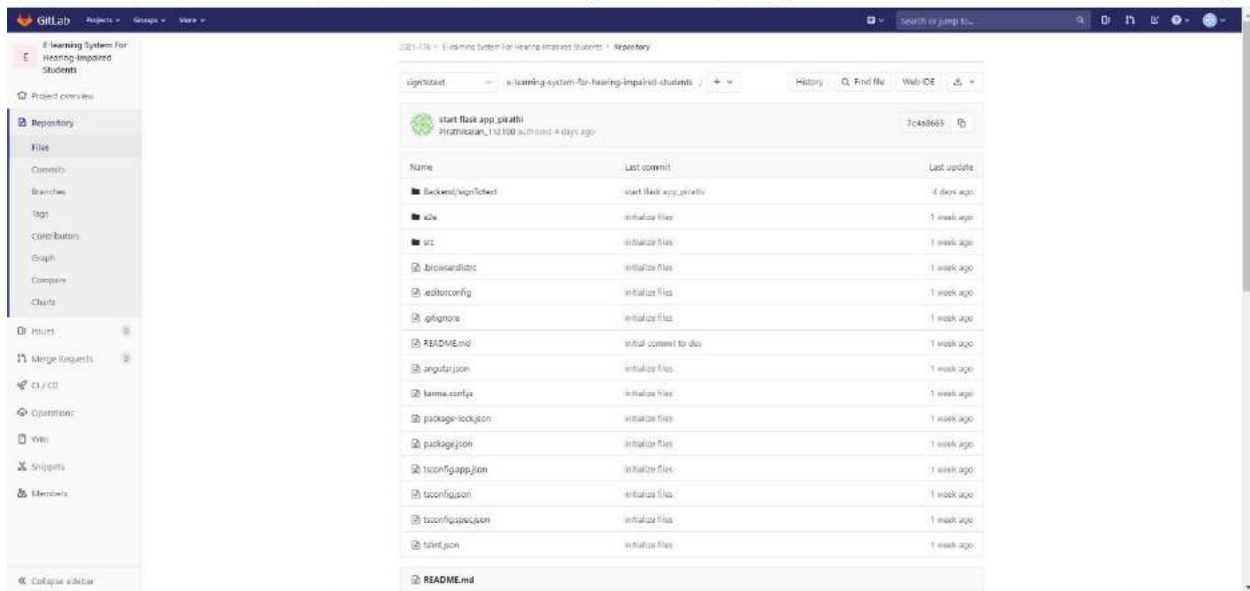
Language	Percentage
HTML	38.74%
TypeScript	31.24%
Javascript	9.48%
CSS	9.33%

Commit statistics for signTotext Apr 17 - Jul 02

- Total: 8 commits
- Average per day: 0.1 commits
- Authors: 2

Commits per day of month

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												
Evaluation												
Topic Assessment form												
Charter												
Proposal document												
Proposal presentation												
Project planning												
System planning												
Collecting required data												
Selecting Algorithm technologies and tools												
Implementation												
Video pre-processing												
Skin segmentation												
Feature Extracting Classification and Text convert												
Fine tune text NLP												
experimental analysis												
Testing and finalize												
Research paper												
Testing												
Final report												
Final evaluation												

4.2 Work-Break Down Chart

