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DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

MINI PROJECT - LOG BOOK

Title of the project

SIGN TO SPEECH CONVERSION FOR THE DUMB AND DEAF

Academic Year: 2023 - 2024

For the Course in

TE E&TC Engineering

(Affiliated to University of Pune)

INDEX

RULES AND REGULATIONS

1. Students should enter the correct information in the Log-Book.
2. Entries in the Log-Book are required to be verified by the concerned Project-Guide.
3. Weekly report is to be filled in and signed by Student and Concerned Guide.
4. Activity schedule should be followed as per the plan.
5. Soft copies of reports are to be submitted in PDF formats only.
6. Project Log-Book is required to be produced at the time of examination.
7. Project Log-Book needs to be submitted to Guide / ME Coordinator.

STUDENTS' DATA

Sr. No.	Roll No.	Name of the Student
1	21ET061	Shreya Prashant Sirsale
2	21ET053	Janhavi Pujare
3	21ET033	Samruddhi Kolapkar

Mini Project (Seminar) Planning

Activity Description	Week Number														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Dates of Week															
Project Establishment: (Problem Statement)	✓	✓													
Literature Review		✓	✓	✓											
Designing and Modeling					✓	✓	✓	✓	✓						
Simulation / Hardware							✓	✓	✓	✓	✓				
Testing and debugging										✓	✓	✓	✓	✓	
Extracting the Result												✓	✓	✓	
Analytical model													✓	✓	
Reporting and Documentation														✓	✓
Report Submission															✓

WEEKLY PROGRESS REPORT

Week No. 1 **From:** 8/01/2024 to 12/01/2024

Project Establishment (Brainstorming and Idea Selection)

Proposed Activity:

- Brainstormed various project ideas related to technology and innovation.

- Conducted initial research on potential project topics.

- Discussed project ideas with mentors and advisors to assess feasibility and relevance.

- Narrowed down project options and identified the sign language to speech converter glove as the chosen project.

- Defined initial project objectives and outlined the problem statement.

Resources Utilized:

- Brainstorming sessions with team members.

- Research conducted through online databases and resources.

- Consultation with mentors and advisors.

Requirement to procure any Software/Hardware for Project: - None during this phase.

Comment on Outcome:

- Successfully identified and selected the sign language to speech converter glove project after thorough brainstorming and discussion.

- Initial project objectives and problem statement defined, providing a clear direction for further progress.

WEEKLY PROGRESS REPORT

Week No. 2 **From:** 15/ 01/ 2024 To 19/ 01/2024

Project Establishment (Defining Scope and Setting Up Infrastructure)

Proposed Activity:

- Clarified the scope of the chosen project, including key objectives and deliverables.

- Conducted further research on existing technologies and literature related to sign language recognition and machine learning.

- Established communication channels and project management tools for effective collaboration.

- Assigned roles and responsibilities within the team and defined a timeline for project execution.

- Documented project objectives, scope, and initial plans for reference and future tracking.

Resources Utilized:

- Online research databases for in-depth exploration of relevant literature.

- Collaboration tools for setting up communication channels and project management.

- Team discussions and consultations for role assignments and timeline planning.

Requirement to procure any Software/Hardware for Project:

- None during this phase.

Comment on Outcome:

- Scope of the project clarified, including objectives, deliverables, and timeline.

- Infrastructure set up for effective communication and project management.

- Roles and responsibilities assigned, ensuring efficient team coordination and progress tracking.

WEEKLY PROGRESS REPORT

Week No. 3 **From:** 22/ 01/ 2024 To 26/ 01/2024

Literature Review (Sign to Speech Conversion Glove)

Proposed Activity:

- Conducted an in-depth literature review on sign language recognition technologies and machine learning algorithms.

- Explored research papers, articles, and academic journals focusing on sign language to speech conversion.

- Analyzed existing methods and approaches used in similar projects.

- Identified key challenges, advancements, and potential solutions in the field.

Resources Utilized:

- Academic journals, research papers, and online databases for literature review.

- Collaboration tools for sharing and discussing findings with team members.

- Guidance from mentors and advisors to navigate relevant literature effectively.

Requirement to procure any Software/Hardware for Project:

- Laptop, Internet, Adobe

Comment on Outcome:

- Comprehensive literature review conducted, providing valuable insights into existing sign language recognition technologies.

- Identified key research gaps and potential areas for innovation in the sign to speech conversion glove project.

Signature of Students:

Shreya Sirsale -

Janhavi Pujare -

Samruddhi Kolapkar -

Date: **Signature of Teacher**

WEEKLY PROGRESS REPORT

Week No. 4 **From:** 29/ 01/ 2024 To 02/ 02/2024

Literature Review (Continued Exploration and Analysis)

Proposed Activity:

- Continued in-depth exploration of literature related to sign language recognition and machine learning algorithms.

- Analyzed and summarized findings from relevant research papers and articles.

- Identified state-of-the-art techniques and methodologies applicable to the sign to speech conversion glove project.

- Synthesized literature review findings to inform the design and development stages of the project.

Resources Utilized:

- Academic journals, research papers, and online databases for continued literature review.

- Collaboration tools for organizing and synthesizing literature review findings.

- Discussions with project mentors or advisors for guidance and feedback on the analysis.

Requirement to procure any Software/Hardware for Project: - None during this phase.

Comment on Outcome:

- Completed comprehensive review of literature relevant to sign language recognition and machine learning algorithms.

- Identified cutting-edge techniques and methodologies to incorporate into the design and development of the sign to speech conversion glove.

- Literature review findings will serve as a solid foundation for the subsequent stages of the project.

WEEKLY PROGRESS REPORT

Week No. 5 **From: :** 05/02/2024 to 09/ 02/2024

Designing and Modeling (Initial Stage)/

Proposed Activity:

- Started the initial stage of designing and modeling the sign to speech conversion glove prototype.

- Utilized online software tools such as Autodesk Fusion 360 or Tinkercad for 3D modeling of the glove's physical components.

- Defined the basic structure and layout of the glove, considering ergonomic factors and sensor placement.

- Discussed design concepts and ideas within the team to ensure alignment with project objectives.

Resources Utilized:

- Online software tools for 3D modeling (e.g., Autodesk Fusion 360, Tinkercad).

- Tutorials and guides available on the software platforms for learning and reference.

- Collaboration tools for sharing and discussing design concepts within the team.

Requirement to procure any Software/Hardware for Project:

- Access to online software tools for 3D modeling (e.g., Autodesk Fusion 360, Tinkercad).

Comment on Outcome:

- Initiated the design and modeling process for the sign to speech conversion glove prototype.

- Utilized online software tools for 3D modeling to create a preliminary design concept.

- Team collaboration ensured that design considerations aligned with project objectives and requirements.

Signature of Students:

Shreya Sirsale -

Janhavi Pujare -

Samruddhi Kolapkar -

Date: **Signature of Teacher**

WEEKLY PROGRESS REPORT

Week No. 6 **From:** 12/03/2024 to 16/02/2024

Designing and Modeling (Progress and Refinement)

Proposed Activity:

- Utilized feedback from team members and mentors to improve the design and functionality of the glove prototype.

- Explored additional features and enhancements based on emerging design considerations and technological advancements.

- Collaborated closely with experts in ergonomics and wearable technology to ensure user comfort and usability.

Resources Utilized:

- Online software tools for 3D modeling (e.g., Autodesk Fusion 360, Tinkercad).

- Research materials and documentation on ergonomic design principles and wearable technology.

Requirement to procure any Software/Hardware for Project:

- Access to online software tools for 3D modeling (e.g., Autodesk Fusion 360, Tinkercad).

Comment on Outcome:

- Made significant progress in refining the design and modeling of the sign to speech conversion glove prototype.

- Incorporated feedback and suggestions from team members and experts to enhance functionality and usability.

- Continued exploration of additional features and improvements to optimize the prototype design for user interaction and performance.

WEEKLY PROGRESS REPORT

Week No.7 **From:** 19/02/2024 to 23/02/2024

Designing and Modeling (Advanced Stage)

Proposed Activity:

- Advanced stage of designing and reaching approximately 85% completion.

- Finalized the detailed design of the glove's physical components, including sensor placement and wiring layout.

- Conducted thorough reviews and revisions to ensure the accuracy and functionality of the prototype design.

Resources Utilized:

- Online software tools for 3D modeling (e.g., Autodesk Fusion 360, Tinkercad).

- Collaboration tools for sharing design iterations and receiving feedback.

- Expert consultations and guidance for resolving design issues and optimizing the prototype.

Requirement to procure any Software/Hardware for Project:- None during this phase.

Comment on Outcome:

- Finalized the detailed design of the sign to speech conversion glove prototype, ensuring accuracy and functionality.

- Collaboration and feedback from team members and advisors contributed to resolving design challenges and making necessary refinements.

WEEKLY PROGRESS REPORT

Week No.8 **From:** 26/02/2024 to 01/03/2024

Simulation / Hardware (Initiation)

Proposed Activity:

- Initiated the simulation and hardware work for the sign to speech conversion glove project.

- Started setting up simulation software tools such as MATLAB or Simulink for testing and validating the prototype's functionality.

- Began procurement and assembly of hardware components required for the prototype, including sensors, microcontrollers, and communication modules.

Resources Utilized:

- Simulation software tools (e.g., MATLAB, Simulink) for testing prototype functionality.

- Hardware components procured for the prototype assembly.

Requirement to procure any Software/Hardware for Project:

- Procurement of hardware components for prototype assembly.

Comment on Outcome:

- Successfully initiated the simulation and hardware work for the sign to speech conversion glove project.

- Set up simulation software tools and started testing prototype functionality.

- Procured necessary hardware components and conducted initial tests to ensure compatibility and functionality.

WEEKLY PROGRESS REPORT

Week No.9 **From:** 04/03/2024 to 08/03/2024

Simulation / Hardware (Progress and Integration)

Proposed Activity:

- Continued with simulation and hardware work, making progress towards validating the prototype's functionality.

- Integrated hardware components into the prototype glove assembly, ensuring proper wiring and connectivity.

- Conducted comprehensive tests and simulations to validate the performance of the prototype in real-world scenarios.

- Addressed any issues or discrepancies identified during testing and made necessary adjustments to improve functionality.

Resources Utilized:

- Simulation software tools (e.g., MATLAB, Simulink) for prototype testing and validation.

- Hardware components integrated into the prototype assembly.

- Collaboration with experts and team members for troubleshooting and optimization.

Requirement to procure any Software/Hardware for Project:- MATLAB, Simulink

Comment on Outcome:

- Made significant progress in simulation and hardware work, moving towards validating the functionality of the prototype.

- Integrated hardware components into the prototype assembly, ensuring proper connectivity and functionality.

WEEKLY PROGRESS REPORT

Week No.10 **From:** 11/03/2024 To 15 /03 /2024

Hardware Completion and Testing Initiation

Proposed Activity:

- Completed the assembly and integration of hardware components into the sign to speech conversion glove prototype.

- Conducted final tests and checks to ensure proper functionality and connectivity of all hardware elements.

- Initiated testing phase to evaluate the performance and accuracy of the prototype in capturing and interpreting sign language gestures.

- Identified any initial hardware-related issues or discrepancies and began troubleshooting procedures.

Resources Utilized:

- Completed hardware components integrated into the prototype assembly.

- Testing equipment and tools for evaluating hardware functionality.

- Collaboration with team members and experts for troubleshooting and problem-solving.

Requirement to procure any Software/Hardware for Project: Arduino IDE

Comment on Outcome:

- Successfully completed the assembly and integration of hardware components into the prototype.

- Initiated testing phase to evaluate the prototype's performance and functionality.

- Identified initial hardware-related issues and began troubleshooting procedures to address them effectively.

WEEKLY PROGRESS REPORT

Week No.11 **From:** 18 / 03/ 2024 To 22/03/2024

Testing and Debugging (Continued Evaluation)

Proposed Activity:

- Continued with testing and debugging activities to evaluate the performance and functionality of the sign to speech conversion glove prototype.

- Conducted comprehensive tests to assess the accuracy and reliability of gesture recognition and speech conversion algorithms.

- Identified and documented any software-related bugs or errors and began debugging procedures to resolve them.

- Collaborated closely with team members and advisors to address testing challenges and optimize prototype performance.

Resources Utilized:

- Testing equipment and tools for evaluating prototype functionality.

- Debugging software tools for identifying and resolving software-related issues.

- Collaboration with experts and team members for troubleshooting and optimization.

Requirement to procure any Software/Hardware for Project: Arduino IDE

Comment on Outcome:

- Identified and documented software-related bugs or errors and began debugging procedures to resolve them.

- Collaboration with team members and advisors facilitated effective troubleshooting and optimization of prototype performance.

WEEKLY PROGRESS REPORT

Week No.12 **From:** 25 / 03 / 2024 To 29/03/2024

Testing and Debugging Completion

Proposed Activity:

- Completed testing and debugging activities to evaluate the performance and functionality of the sign to speech conversion glove prototype.

- Conducted final tests to validate the accuracy and reliability of gesture recognition and speech conversion algorithms.

- Addressed any remaining issues or discrepancies identified during testing and debugging.

- Documented testing procedures, results, and resolutions for future reference.

Resources Utilized:

- Testing equipment and tools for final evaluation of prototype functionality.

- Collaboration with team members and advisors for final troubleshooting and issue resolution.

- Documentation tools for recording testing procedures and outcomes.

Requirement to procure any Software/Hardware for Project: Microsoft Word, Arduino IDE

Comment on Outcome:

- Successfully completed testing and debugging activities, ensuring the prototype meets performance requirements.

- Addressed any remaining issues or discrepancies identified during testing, ensuring the prototype's functionality and accuracy.

- Documentation of testing procedures and outcomes provides a reference for future development stages.

WEEKLY PROGRESS REPORT

Week No.13 **From:** 01/04/2024 to 05/04/2024

Results Extraction and Analytical Model Development

Proposed Activity:

- Initiated the extraction of results from the testing phase to analyze the performance of the sign to speech conversion glove prototype.

- Developed analytical models to evaluate the effectiveness and efficiency of gesture recognition and speech conversion algorithms.

- Analyzed collected data to identify patterns, trends, and areas for improvement in prototype performance.

- Collaborated with team members and experts to interpret results and refine analytical models.

Resources Utilized:

- Data analysis software tools for extracting and analyzing testing results.

- Development tools for creating analytical models and simulations.

- Collaboration with experts and team members for data interpretation and model refinement.

Requirement to procure any Software/Hardware for Project: Microsoft Word, Arduino IDE

Comment on Outcome:

- Initiated the extraction of results from testing, providing valuable insights into the performance of the prototype.

- Developed analytical models to evaluate the effectiveness and efficiency of prototype algorithms.

- Collaboration with team members and experts facilitated data interpretation and model refinement.

WEEKLY PROGRESS REPORT

Week No.14 **From:** 8/04/2024 to 12/04/2024

Documentation Process Initiation

Proposed Activity:

- Initiated the documentation process to capture project details, including design specifications, testing procedures, results, and analytical models.

- Compiled documentation templates and guidelines for consistent and comprehensive reporting.

- Gathered information from all project stages, including design, testing, and analysis, for inclusion in the documentation.

- Assigned documentation tasks to team members and established a timeline for completion.

Resources Utilized:

- Documentation templates and guidelines for consistent reporting.

- Collaboration tools for sharing and editing documentation among team members.

- Time management tools for scheduling documentation tasks and deadlines.

Requirement to procure any Software/Hardware for Project: Microsoft word, Arduino IDE

Comment on Outcome:

- Initiated the documentation process to capture project details comprehensively.

- Compiled documentation templates and guidelines to ensure consistent reporting.

- Assigned documentation tasks to team members, ensuring efficient completion of documentation requirements.

WEEKLY PROGRESS REPORT

Week No.15 **From:** 15 /04/2024 To 19/04/2024

Documentation Completion and Project Submission

Proposed Activity:

- Completed the documentation process to capture all project details, including design specifications, testing procedures, results, analytical models, and any other relevant information.

- Reviewed and finalized the project report and logbook, ensuring accuracy, completeness, and compliance with project requirements.

- Compiled all project documents, including the final project report, logbook, and any supplementary materials, into a cohesive submission package.

Resources Utilized:

- Collaboration tools for sharing and editing documentation among team members.

- Review and feedback from mentors or advisors to ensure quality and completeness of project documents.

Requirement to procure any Software/Hardware for Project: - None during this phase.

Comment on Outcome:

- Successfully completed the documentation process, capturing all project details comprehensively.

- Reviewed and finalized the project report and logbook, ensuring accuracy and completeness.

- Compiled and submitted the final project, report, and logbook to the relevant authorities or stakeholders, meeting project submission deadlines.

Signature of Students:

Shreya Sirsale(21ET061) -

Janhavi Pujare(21ET053) -

Samruddhi Kolapkar(21ET033) -

Date: **Signature of Teacher**