MINI PROJECT LOGBOOK

(CSM501: Mini Project 2A)

GROUP MEMBERS

1. Piyush Chugeja (11)
2. Sakshi Kirmathe (25)
3. Deven Bhagtani (6)

Dr. (Mrs.) Nupur Giri

Department of Computer Engineering

Vivekanand Education Society's Institute of Technology

An Autonomous Institute affiliated to University of Mumbai

HAMC, Collector's Colony, Chembur

Mumbai - 400074

University of Mumbai (AY 2023 - 24)

INSTITUTE VISION & MISSION

VISION:

To create a vibrant knowledge oriented environment with innovative teaching practices and to inculcate a tradition of socially conscious application of technology.

MISSION:

- To inculcate a culture of value based education.
- To enthuse students to develop in an ambient environment of caring and of sharing information.
- To enable students to work towards excellence in their chosen field with a professional bent of mind.

COMPUTER ENGINEERING DEPARTMENT

VISION:

To reach international standards by empowering students with Computing skills and cutting edge technology

MISSION:

- To sustain excellence in teaching and research and create center of excellence
- To provide broad Educational and Research experiences through interdisciplinary and industrial collaboration programs.
- To prepare students to enter the world of computing and make them ready for productive employment in the public or private sectors, enhance their entrepreneurship skills and motivate them to pursue advanced degrees.

PROGRAM EDUCATIONAL OBJECTIVES (PEO's)

I	To provide students with a solid foundation in their core concepts of mathematical, scientific and computer engineering fundamentals required to comprehend, analyze and design solutions for real life problems.
II	To inculcate in students, a balanced outlook with professional and ethical attitude, develop effective communication skills, teamwork and leadership qualities with multidisciplinary approach.
III	To prepare students to excel in postgraduate programs through an excellent academic environment and make them ready for productive employment in the public or private sectors and provide lifelong learning experience.
IV	To provide broad educational and research experience through interdisciplinary and industry centric programs.

PROGRAM OUTCOMES (POs)

Program Outcome Code	Program Outcome Description
PO1	Basic Engineering knowledge: An ability to apply the fundamental knowledge in mathematics, science and engineering to solve problems in Computer engineering.
PO2	Problem Analysis: Identify, formulate, research literature and analyze computer engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and computer engineering and sciences
PO3	Design/ Development of Solutions: Design solutions for complex computer engineering problems and design system components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal and environmental considerations.

PO4	Conduct investigations of complex engineering by problems using research-based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of information to provide valid conclusions.
PO5	Modern Tool Usage: Create, select and apply appropriate techniques, resources and modern computer engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO6	The Engineer and Society: Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to computer engineering practice.
PO7	Environment and Sustainability: Understand the impact of professional computer engineering solutions in societal and environmental contexts and demonstrate knowledge of and need for sustainable development.
PO8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of computer engineering practice.
PO9	Individual and Team Work: Function effectively as an individual, and as a member or leader in diverse teams and in multidisciplinary settings.
PO10	Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations and give and receive clear instructions.
PO11	Project Management and Finance: Demonstrate knowledge and understanding of computer engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12	Life-long Learning: Recognize the need for and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1	**Professional Skills** - The ability to develop programs for computer based systems of varying complexity and domains using standard practices.
PSO2	**Successful Career** - The ability to adopt skills, languages, environment and platforms for creating innovative career paths, being successful entrepreneurs or for pursuing higher studies.

STUDENT INFORMATION

Project Title: Gesturely - converting gestures to words

	Student 1	**Student 2**	**Student 3**
Roll No.	11	25	6
Name	Piyush Chugeja	Sakshi Kirmathe	Deven Bhagtani
Class & division	D12B	D12B	D12B
Contact No.	7506699134	8652839845	7218572159
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INSTRUCTIONS TO STUDENTS:

1. The logbook must be submitted to the mentor or Co-Mentor for verification and evaluation of project activities at least once in a week.
2. Logbook duly signed by the guide must be submitted with a project report for evaluation at the end of semester to the department.

DECLARATION

I declare that this project represents my ideas in my own words and wherever others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my project work. I promise to maintain minimum 75% attendance, as per the University of Mumbai norms. I understand that any violation of the above will be cause for disciplinary action by the Institute.

Yours Faithfully

1. Piyush Chugeja (11)
2. Sakshi Kirmathe (25)
3. Deven Bhagtani (6)

Letter of Acceptance

I, **Dr. Nupur Giri**, working in the Computer Engineering department, willing to guide the project titled **Gesturely: Converting gestures to words** for the Mini Project 2A Semester V respectively for the **Academic Year 2023-24.** The names of the students are:

1. **Piyush Chugeja**
2. **Sakshi Kirmathe**
3. **Deven Bhagtani**

Dr. (Mrs.) Nupur Giri **Mrs. Priya R. L**

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COURSE OUTCOMES

CO No.	COURSE OUTCOME	POs covered	PSOs covered
CO1	Identify problems based on societal /research needs.	PO1, PO2,PO4	PSO1, PSO2
CO2	Apply Knowledge and skill to solve societal problems in a group.	PO1,PO2,PO4, PO5,PO6,PO8	PSO1, PSO2
CO3	Develop interpersonal skills to work as a member of a group or leader.	PO1,PO2,PO4, PO9,PO11	PSO1,POS2
CO4	Draw the proper inferences from available results through theoretical/ experimental/simulations.	PO1,PO2,PO4, PO5,PO6,PO12	PSO1,POS2
CO5	Analyze the impact of solutions in societal and environmental context for sustainable development.	PO2,PO3,PO4, PO7,PO12	PSO1,POS2
CO6	Use standard norms of engineering practices	PO1,PO2,PO4, PO12	PSO1
CO7	Excel in written and oral communication.	PO1,PO4,PO8, PO9,PO10,PO12	PSO1
CO8	Demonstrate capabilities of self-learning in a group, which leads to lifelong learning.	PO1,PO2,PO4, PO12	PSO1
CO9	Demonstrate project management principles during project work.	PO1,PO2,PO4, PO11,PO12	PSO1,POS2

CO-PO-PSO MAPPING

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	2	-	2	-	-	-	-	-	-	-	-	1	1
CO2	2	2	-	2	3	2	-	2	-	-	-	-	2	1
CO3	1	1	-	2	-	-	-	-	3	3	-	-	1	1
CO4	2	1	-	1	2	2	-	-	-	-	-	2	2	1
CO5	-	2	1	2	-	-	3	-	-	-	-	1	1	2
CO6	1	2	-	1	-	-	-	-	-	-	-	2	2	-
CO7	1	-	-	1	-	-	-	3	2	2	-	1	1	-
CO8	1	3	-	3	-	-	-	-	-	-	-	2	1	-
CO9	1	1	-	2	-	-	-	-	-	-	2	2	1	2

SCHEDULE FOR MINI PROJECT

Date	Week	Contents	Remark	Guide Sign
07/08/2023	1	Research various project topics and literature survey discussion on the finalized topic.		
16/08/2023	2	Meeting with deaf and mute people to discuss the need of the application.		
23/08/2023	3	Discuss algorithms and approaches to be used to develop the application.		
30/08/2023	4	Started dataset collection regarding ISL signs and gestures.		
10/09/2023	5	Started working on an image classifier model to recognise ISL alphabets in real time using computer vision.		
13/09/2023	6	Review I		
18/09/2023	6	We made changes to our work as guided by the reviewer and mentor. Changed the implementation methodology from deep learning to machine learning and Mediapipe.		
25/09/2023	7	Rectified the errors caused by deep learning models using Mediapipe and machine learning to accurately identify ISL alphabets in real time.		
03/10/2023	8	Developed a model which recognizes hand gestures for several words accurately. Started working on the project report.		
10/10/2023	9	Worked on the model to include dynamic gestures in real time and sentence generation. Updated the report.		
18/10/2023	10	Progress review and report verification.		

PROGRESS / ATTENDANCE REPORT

Title of the Project: Gesturely - converting gestures to words	
Group No.: 02	Piyush Chugeja
	Sakshi Kirmathe
	Deven Bhagtani
Name of the Supervisor: Dr. (Mrs.) Nupur Giri	

Sr. No	Date	Attendance			Progress / Suggestion	Mapping		
		1	2	3		CO	PO	PSO
1	07/08/23	✓	✓	✓	Literature survey discussion.	1	1, 2, 4	1, 2
2	16/08/23	✓	✓	✓	Get input from prospective users.	2	1, 2, 4, 5, 6, 8	1, 2
3	23/08/23	✓	✓	✓	Discuss algorithms and approaches.	4	1, 2, 4, 5, 6, 12	1, 2
4	30/08/23	✓	✓	✓	Dataset collection.	4	1, 2, 4, 5, 6, 12	1, 2
5	10/09/23	✓	✓	✓	Develop an image classifier using CNN.	4	1, 2, 4, 5, 6, 12	1, 2
6	13/09/23	✓	✓	✓	Review I	4	1, 2, 4, 5, 6, 12	1, 2
7	18/09/23	✓	✓	✓	Change approach to use mediapipe and machine learning.	4	1,2,4,5,6,12	1, 2
8	25/09/23	✓	✓	✓	Develop alphabet recognizer using mediapipe.	4	1, 2, 4, 5, 6, 12	1, 2
9	03/10/23	✓	✓	✓	Recognise word based gestures.	4	1, 2, 4, 5, 6, 12	1, 2
10	10/10/23	✓	✓	✓	Convert words to sentences.	5	1, 2, 4, 5, 6, 12	1, 2
10	10/10/23	✓	✓	✓	Review of Progress	5	2, 3, 4, 7, 12	1, 2

Dr. (Mrs.) Nupur Giri

EXAMINER'S FEEDBACK FORM

Name of External examiner: _____

College of External examiner: _____

Name of Internal examiner: _____

Date of Examination: ___/___/_____

No. of students in project team: 3

Availability of separate lab for the project: Yes / No

Student Performance Analysis (Put Tick as per your Observation)

Excellent (3)	Very Good (2)	Good (1)		
Sr. No.	**Observation**	**(3)**	**(2)**	**(1)**
1	Quality of problem and Clarity			
2	Innovativeness in solutions			
3	Cost effectiveness and Societal impact			
4	Full functioning of working model as per stated requirements			
5	Effective use of skill sets			
6	Effective use of standard engineering norms			
7	Contribution of an individual's as member or leader			
8	Clarity in written and oral communication			
9	Overall performance			

- Can the same mini project extend to next semester by adding new objectives/ideas? (Yes/ No)
- If yes, suggest new Innovative Technique / Idea / objectives related to this project.

Signature of External Examiner **Signature of Internal Examiner**