Silicon Institute of Technology | An Autonomous Institute |

Department of CSE

FORM-I

SILICON INSTITUTE OF TECHNOLOGY
SILICON HILLS, PATIA, BHUBANESWAR-751024
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APPLICATION FOR SUBMISSION OF PARTICULARS RELATING TO PROJECT WORK FOR B.TECH (CSE) PROGRAMME
(PRC COPY)

NOTE: Last date for receipt of the application is 19.01.2022

1. Group Member Details:

Sl. No.	Regd. No.	Name	Branch	Email	Mob. No.
1	1801209115	Avantika Mishra	CSE	avantikamishra31.am@gmail.com	8599078729
2	1801209192	Isha Bharadwaj	CSE	ishabharadwaj08@gmail.com	9078406261
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4	1801209073	Anmol Ray	CSE	anmolray04@gmail.com	9566025392

2. Area of Interest (Fill this point if Guide & project topic is not decided)
(You must specify 3 areas of your interest from the list of areas)

a.

b.

c.

3. **Consent from Guide** : **Yes** *(If Yes, submit Form-II)*

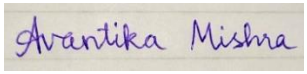
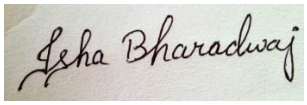
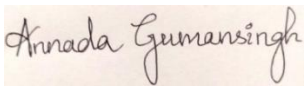
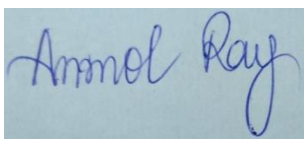
Name of the Guide with : Dr. Soumya Priyadarsini Panda

Designation and Affiliation Assistant Professor, Department of CSE
Silicon Institute of Technology, Bhubaneswar

Signature of Guide : _____

4. Topic proposed for project work : Real-time Sign Language Interpretation System

SIGNATURE OF THE APPLICANTS

1. 
2. 
3. 
4. 

Silicon Institute of Technology, Bhubaneswar

Department of Computer Science & Engineering

FORM-II

PROJECT TITLE: Real-time Sign Language Interpretation System

ABSTRACT:

Deaf and mute people use sign language to communicate. Unlike acoustically conveyed sound patterns, sign language uses hand gestures, facial expressions, body language and manual communication to convey thoughts. Due to the considerable time required in learning Sign Language, people find it difficult to communicate with specially-abled people, creating a communication gap. Hence conventionally, people face problems in recognizing sign language. Moreover, different countries have their respective form of sign gesture communication which results in non-uniformity. The Indian Sign Language used in India is largely different from the American Sign Language used in the US, mostly because of the difference in culture, geographical and historical context. Somewhere between 138 and 300 different types of sign language are currently being used throughout the world. Sign language structure varies spatially and temporally. We have identified these as a major barrier in communicating with a significant part of society. And hence, we propose to design a system that recognizes different signs and conveys the information to people.

The component of any sign language consists of hand shape, motion and place of articulation. When combined, these three components (together with palm orientation) uniquely determine the meaning of the manual sign. For sign language identification, sensor-based and vision-based methods are used. In vision-based gesture recognition technology, a camera reads the movements of the human body, typically hand movements and uses these gestures to interpret sign language; whereas in sensor-based methods, real-time hand and finger movements can be monitored using the leap motion sensor. We aim at developing a scalable project where we will be considering different hand gestures to recognize the letters and words. We plan to use different deep learning models to predict the sign. This may be developed as a desktop or mobile application to enable specially-abled people to communicate easily and effectively with others. However, this project can later be extended to capture the whole vocabulary of ASL (American Sign Language) through manual and non-manual signs.

A static hand gesture recognition model can recognize finger-spelling based hand gestures to form a complete word by combining each gesture. But such models are probable to not recognize moving signs, such as the letters “J” and “Z”. Adding on, finger-spelling for big words and sentences is not a feasible task and temporal properties do not get captured. Thus, we aim at performing dynamic hand gesture recognition by applying video classification. We wish to develop a system that may take in sign language as input from the webcam, convert it into text and display the relevant translation as output. That way, we aim at smoothing the overall process of communication between a specially-abled person and the generalized world. We strongly believe, being born with a certain limitation should never act as a barrier to communication.

Keywords :
Sign language, ASL, dynamic hand gesture recognition

Signature of the Guide

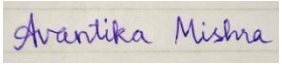
Name of the Guide Dr. Soumya Priyadarsini Panda

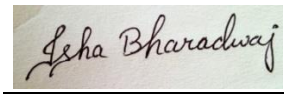
Signature of the Co-Guide _____

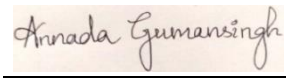
Name of the Co-Guide _____

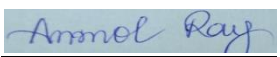
Date: 19th January 2022

Full Signature of the Candidates

1) 

2) 

3) 

4) 

Silicon Institute of Technology, Bhubaneswar

FORM-III

Department of Computer Science & Engineering

To be filled up and resubmitted in case the topic and abstract found inappropriate by the PRC.

PROJECT TITLE: _____

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ABSTRACT:

Keywords :

Signature of the Guide _____ Full Signature of the Candidates

Name of the Guide _____ 1) _____

Signature of the Co-Guide _____ 2) _____

Name of the Co-Guide _____ 3) _____

Date: 4) _____