2022 Intel Cup Undergraduate Electronic Design Contest

- Embedded System Design Invitational Contest

Project Introduction

University	Indian Institute of Technology, Gandhinagar		
Faculty Mentor	Jhuma Saha		
Team Member	Shubham Kumar	Rajan Patel	Dheeraj Kumar
Subject	American Sign Language Recognizer		

Brief Introduction **(Within 250 words)**	The project is to recognize American sign language using, SEAVO CPU and DE-10 nano-board. The people who are deaf and mute, can communicate with each other with American sign language but people who can speak and hear are not able to understand the American Sign language much. Our objective is to break this barrier of language among peers. Thus, we have developed a system which can recognize the sign language done by hand gestures and display it on the digital medium. The main aim is to enhance the communication for the specially challenged beings. In an effort to do so, we have developed a model based on neural networks, and have implemented it on DE-10 nano-board. Input given to the network is in the form of images (could be taken through cameras or manually provided), and the output is displayed on a digital platform (Seven-Segment LEDs). The model can recognize all the alphabets excluding letter "Z" (as it is not possible to display on Seven-Segment LED). Both uppercase and lowercase letters have been implemented. The implemented model shows an accuracy of ~ 93%. We believe that this project is a step towards building effective communication medium for the specially challenged human beings, and finds potential application in surveillance systems, education purposes, portable hand held digital device, and many more. This project could be extended for accepting video inputs and to recognize various sign languages.

1. Please fill the blanks with Times New Roman font, size 12, and single-spaced.
2. There should be only one faculty mentor.
3. Faculty mentor and team members should be the same as that on the registration form.
4. Subject should be the same as that on the final report.