DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

SHARDA SCHOOL OF ENGINEERING AND TECHNOLOGY

SHARDA UNIVERSITY, GREATER NOIDA

Controlling Basic Computer Functionalities With Hand Gesture

A project submitted
in partial fulfillment of the requirements for the degree of
Bachelor of Technology in Computer Science and Engineering

by

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Supervised by:

Mr. Akhilesh Kumar Singh

Co-Supervised by:

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MAY 2023

CERTIFICATE

This is to certify that the report entitled **"Controlling Basic Computer Functionalities With Hand Gesture"** submitted by "Rupansh Verma (2019648435) and Shubham Kumar Prajapati (2019005595)" to Sharda University, towards the fulfillment of requirements of the degree of **"Bachelor of Technology"** is record of Bonafede final year Project work carried out by them in the **"Department of Computer Science & Engineering, Sharda School of Engineering and Technology, Sharda University"**.

The results/findings contained in this Project have not been submitted in part or full to any other University/Institute for award of any other Degree/Diploma.

Signature of the Guide

Name: Mr. Akhilesh Kumar Singh

Signature of Head of Department

Name: Prof. (Dr.) Nitin Rakesh

Place: Sharda University

Date:

Signature of External Examiner

Date:

ACKNOWLEDGEMENT

A major project is a golden opportunity for learning and self-development. We consider ourselves very lucky and honored to have so many wonderful people lead us through in completion of this project.

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ABSTRACT

In general, Human Computer Interaction is moving away from the traditional keyboard and mouse toward interfaces that appear natural and straightforward to use. Because of its wide range of applications and ability to effectively communicate with machines, hand gesture recognition is one of the most important approaches for creating user-friendly interfaces.

Hand gestures, which include movements of the hands, fingers, and arms, are important for engagement. The various levels of the hand gesture are perceived from the level of static gesture to the level of dynamic gestures or sophisticated foundation through which human feelings are successfully communicated with computers. The suggested method is framed by the recognition of hand gestures since it has the advantage of being simple to use and does not require the use of an intermediary medium.

In terms of human-computer interface, the current approach for application access is rigid and difficult for those with blindness and hand deformities. In this study, a deep convolutional neural network is proposed to recognize hand motions and categorize them quickly by maintaining even the non-hand area without any detection or segmentation step. As a result, the suggested goal is to leverage various hand motions via an integrated webcam and a deep learning concept to benefit the visually impaired and persons with hand disabilities.

Keywords: Python, OpenCV, Mediapipe, Computer Vision.

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