**HAND GESTURE INTERFACE BASED TOUCHLESS EXPLORATION OF MEDICAL IMAGES**

A Project Report Submitted

FOR THE DEGREE OF

**BACHELOR OF TECHNOLOGY**

**IN**

**Electronics Engineering**

**BY**

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**UNDER THE GUIDANCE OF**

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**<Designation of the Guide>**

**DKTE SOCIETY'S**

**TEXTILE AND ENGINEERING INSTITUTE, ICHALKARANJI**

**(An Autonomous Institute)**

**2021-22**

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**TEXTILE AND ENGINEERING INSTITUTE, ICHALKARANJI**

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**CERTIFICATE**

This is to certify that the project entitled (HAND GESTURE INTERFACE BASED TOUCHLESS EXPLORATION OF MEDICAL IMAGES) submitted by

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in the partial fulfilment of the requirements for the award of **Bachelor of Technology** Degree in **Electronics Engineering** at the DKTE Society's Textile and Engineering Institute, Ichalkaranji (an autonomous institute affiliated to Shivaji University, Kolhapur) is an authentic work carried out by them under our supervision and guidance.

The students have satisfactorily completed the project work and to the best of our knowledge and belief, the matter embodied in this submission has not been submitted to any other University/ Institute for the award of any degree or diploma.

Place: Ichalkaranji

Date:

Name of the Guide

Guide [HOD] [Director]

**Declaration**

We declare that this written submission represents our ideas in our own words and where others' ideas or words have been included, we have adequately cited and referenced the original sources. We also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in our submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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**Abstract**

Hand gestures form nonverbal communication that can be used in several fields such as communication between deaf-mute people, robot control, human-computer interaction and medical applications. The hand sign can be classified under many headings, such as posture and gesture, as well as dynamic and static. Human-Computer Interaction (HMI) is useful in sterile environments such as operating rooms (OR) where surgeons need to interact with images from scanners of organs on screens. Contamination issues may happen if the surgeon must touch a keyboard or the mouse. In order to reduce contamination and improve the interactions with the images without asking another team member, the process is carried on. The above-mentioned problem is what we worked on. In order to detect the signs, deep learning methods have been programmed using a pretrained Convolutional Neural Network. For such development this model will be working with Convolution Neural Network, with different classification methods. Rotation, Information, Zoom-In, Zoom-Out images on screen according to the recognised sign. Future work will include tests in real situations in an operating room to obtain feedback from doctors to improve the system.