

***GESTURE CONTROLLED ROBOT USING RASPBERRY PI***

**MINI PROJECT REPORT**

**SUBMITTED BY DEBANIK ROY**

**SESSION 2017 – 2021**

SUPERVISED BY-

DR. ANKUSH GHOSH



**CERTIFICATE**

This is to certify that the project report entitled “GESTURE CONTROLLED ROBOT USING RASPBERRY PI”, submitted to the Department of Robotics Engineering, The Neotia University, for the Course: Mini Project (PW-RE/D/401), is a record of bona fide work carried out by Mr. Debanik Roy, Roll No: TNU2017025100001, under my supervision and guidance.

Dr. Ankush Ghosh

Asst. Professor

Robotics Engineering

Date: 15/05/2019

Place: Sarisha

**CERTIFICATE OF ORIGINALITY**

This is to certify, that the project report submitted by me is an outcome of my independent and original work. I have duly acknowledged all the sources from which the ideas and extracts have been taken. The project is free from any plagiarism and has not been submitted elsewhere.

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Place: Sarisha

Date: 15/05/2019

**ACKNOWLEDGEMENT**

We would like to acknowledge our yotubers and all Teachers, who supported us both morally and technically, especially pyimagesearch helped me at every step in the making of my project.

**ABSTRACT**

Gesture Controlled Robot is a robot which can be controlled by simple hand gesture movement. Camera is installed on in robot. The Camera will record the movement of hand in a specific direction which will result in the movement of the robot in the respective direction. The robot and the Gesture device are connected wirelessly via radio waves. The wireless communication enables the user to interact with the robot in a more friendly way.

**1.1 ROBOT**

A robot is usually an electro-mechanical machine that can perform tasks automatically. Some robots require some degree of guidance, which may be done using a remote control or with a computer interface. Robots can be autonomous, semi-autonomous or remotely controlled. Robots have evolved so much and are capable of mimicking humans that they seem to have a mind of their own.

**1.2 HUMAN MACHINE INTERACTION**

An important aspect of a successful robotic system is the Human-Machine interaction. In the early years the only way to communicate with a robot was to program which required extensive hard work. With the development in science and robotics, gesture based recognition came into life. Gestures originate from any bodily motion or state but commonly originate from the face or hand. Gesture recognition can be considered as a way for computer to understand human body language. This has minimized the need for text interfaces and GUIs (Graphical User Interface).

**1.3 GESTURE**

A gesture is an action that has to be seen by someone else and has to convey some piece of information. Gesture is usually considered as a movement of part of the body, esp. a hand or the head, to express an idea or meaning.

**1.4 MOTIVATION FOR PROJECT**

Our motivation to work on this project came from a disabled person who was driving his wheel chair by hand with quite a lot of difficulty. So we wanted to make a device which would help such people drive their chairs without even having the need to touch the wheels of their chairs.

**1.5 OBJECTIVE OF PROJECT**

Our objective is to make this device simple as well as cheap so that it could be mass produced and can be used for a number of purposes

**GESTURE CONTROLLED ROBOT**

Gesture recognition technologies are much younger in the world of today. At this time there is much active research in the field and little in the way of publicly available implementations. Several approaches have been developed for sensing gestures and controlling robots. Glove based technique is a well-known means of recognizing hand gestures. It utilizes a sensor attached to a glove that directly measures hand movements. A Gesture Controlled robot is a kind of robot which can be controlled by hand gestures and not the old fashioned way by using buttons. The user just needs to wear a small transmitting device on his hand which includes a sensor which is an accelerometer in our case. Movement of the hand in a specific direction will transmit a command to the robot which will then move in a specific direction. The transmitting device includes a Comparator IC for assigning proper levels