IOT BASED SPEED CONTROL OF MOTOR USING NODEMCU(ESP8266)

A project report submitted in partial fulfillment of the requirements
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IN
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Submitted by

M CHANDRA SEKHAR
(17815A0213)

K SRAVANI
(17815A0208)

L PRASAD
(17815A0211)

L SIVA KUMAR
(17815A0212)

T RAMU
(17815A0226)

Under the Esteemed Guidance of

Mr. U ANJAIAH

Assistant Professor

DEPARTMENT OF
ELECTRICAL AND ELECTRONICS ENGINEERING

AVANTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY

(Permanently Affiliated to Jawaharlal Nehru Technological University,Kakinada, AP)

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Tamaram,Narsipatnam,Visakhapatnam-531113

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CERTIFICATE

This is certify that the project report entitled "IOT BASED SPEED CONTROL OF MOTOR USING NODEMCU (ESP8266) "is a bonafide work submitted by M.CHANDR SEKHAR, K.SRAVANI, L.PRASAD, L.SIVA KUMAR, T.RAMU in partial fulfillment of the requirements for the award of degree of

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Internal Guide

Mr Sri U.ANJAIAH

Assistant. Professor

Dept. of Electrical & Electronics Engg.
Narsipatnam.

Sri T.Srinivasa Rao

Head of the Department

Dept. of Electrical & Electronics Engg.

Avanthi Institute of Engg. & Tech.   AIET, Narsipatnam

Abstract

This project is all about the wireless operation of a DC Motor using IOT. In this project, we will control the speed of a DC Motor. Wireless facility is provided with the help of WIFI connectivity. An android handset is required to control the operation. As the name suggests that "Speed Control of DC Motor with IOT" is controlling the speed of a DC motor with any mobile phone containing some medium of connectivity such as WIFI. Various terms related to this project can be discussed as follows. Since we are concern with the wireless application that is why we are using here a mobile phone to control the whole process. Now the question is why should we use a mobile phone? Which is the most suitable mobile phone? So the answer is that mobile is used only for a WIFI connection. We need not to carry an extra device for transmitting the data. This transmitter is already inbuilt in a mobile phone. Now come with the question of most suitable mobile phone, so it can be observed that Android phones are the most widely used phones. Android phones are very easy from the operating point of view. I -phones and windows phones are not as popular as the Android phones. So the Android phone will be used here. We will use a permanent 12V DC motor. In this motor the stator is of permanent magnet and the rotor consists of winding. A Permanent Magnet DC Motor consists of permanent magnets to produce magnetic field. So field cannot be varied since magnets are fixed. But speed of this type of DC Motor can be varied by varying the Main Supply Voltage. This Supply Voltage can be varied with the help of a Arduino. We will send command to Arduino to control the speed. Arduino will receive commands from Android Phone by WIFI. It will send command to a node MCU and this will control the speed of a motor. This is true that the Arduino can run the motor alone but the output of the microcontroller is 5V and this is not sufficient to run the motor. That is why have used the node MCU. This gets the command from the Arduino and give output to the motor as 12V. This 12V is sufficient to run the motor. The speed of a DC motor is directly proportional to the voltage applied across its terminals. Hence, if voltage across motor terminals is varied, then speed can also be varied. This project uses the above principle to control the speed of the motor by varying the duty cycle of the pulse applied to it (known as PWM Control). Remote operation is achieved by any smart - phone/Tablet etc., with Android OS, upon a GUI (Graphical User Interface) based touch screen operation. The project uses WIFI Device, interfaced to the Arduino, which are used to control the speed of the motor