SPEED CONTROL OF DC MOTOR BY USING GSM

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ABSTRACT

In this project we are varying the speed of DC motor (BLDC motor) by GSM sim 800 for transmitting the message for variation of speed (increasing or decreasing) using the Arudino Uno microcontroller using embedded C-programming. In various industries the DC motor is found very common as its properties are very found of industrial applications such as high efficiency,high torque ratio,reliability.it is hard to operate in industries as it require high maintainance that's why we are using gsm sim to vary its speed as its very profitable and we can operate from long distance.

Keywords: *ARDUINO UNO , GSM MODUL*

INTRODUCTION

It is difficult to work in harmfull environment in many of the industries. Human can sustain certain amount of temperature and pressure etc . to work in a environment above a range will cause harm to human life. The motor require automatic control of their main parameter such as speed position acceleration etc . to control the speed of bldc motor in this project we are using gsm sim for adjusting the speed of the motor. So dc motor is used in many application such as steel rolling mills, electric vehicle, crain and robotic manipulators require speed control to perform its operation easily because of their simplicity, reliability and low cost .

the GSM sim module is connected to ardino uno kit by input and output pins. Whenever we send massages from operators mobile to increase or decrease the speed the massage is delivered to the sim which is connected to gsm module and this massage is then transfer to the arduino uno kit. After that arduino read the massage and per the programme which is feeded in the arduino it changes the speed. And this whole process will be displayed on LCD screen of 18:2.

LITERATURE SURVEY

Pooja S. Billade and Sanjay S.Chopade,(2015) worked on three section induction control exploitation single section input and GSM.The authors used managementler during this work may be a remote speed control employing a GSM technique that proves to be much effective and reliable in applications.The general principal was the constant voltage and frequency principle that desires that the voltage magnitude and voltage frequency applied to the stator coil of a motor maintain a continuing magnitude relation

V. Bhaskar, T. Gowri manohar., (2011) published there work in GSM based motor monitoring and speed control, In that paper they emphasizes the design aspect of an device which was embedded which can build management over upto eight equipments by causing a specific text message from a radiophone were conferred by them. The author added that controller was effective and small and less space consuming in the project work undertaken, GSM technology based automatic control system is designed to monitor and control speed of associate degree Induction motor/DC motor and conjointly performs necessary operation like begin, stop, reverse the rotation text.

WORKING

This project include microcontroller Sim 800 GSM module, LCD display, proximity sensor , BLDC motor, Arduino UNO kit, power supply kit. the power spply kit is used to step down the voltage for the arduino kit which reaquire 5V DC supply. GSM is connected to arduino by UART (Universal asynchronous receiver transmitter) microcontroller. LCD (16:2) is connected to digital pin of arduino. The whole process will be displayed on LCD screen. The microcontroller unit connected to speed control mechanism. The speed is varying using Pulse With Modulation Technique. The PWM is a very simple and most widely used to control speed of Brushless DC Motor. The GSM is a Global system for mobile communication GSM is an International digital cellular telecommunication. We used the GSM SIM 800. By using AT's command we can send and receive SMS through the microcontroller.

ARDUINO UNO

Fig.2 ARDUINO UNO

The arduino is most used microcontroller which is easily programmable . It has operating voltage of 5 volt , it has 14 digital input output pins of which 6 pins are PWM output and 6 analog input .it can be also provide usb connection .it work as brain of whole system. Its clock speed is of 16 MHz and also stronger RESET circuit. It contains 16 MHz ceramic resonator.

PROXIMITY SENSORS

1) Proximity sensors is used to detect the speed in our project.
2) There are many types,each suited to specific applications and environment.
3) We are using NPN proximity sensors.

BLOCK DIAGRAM

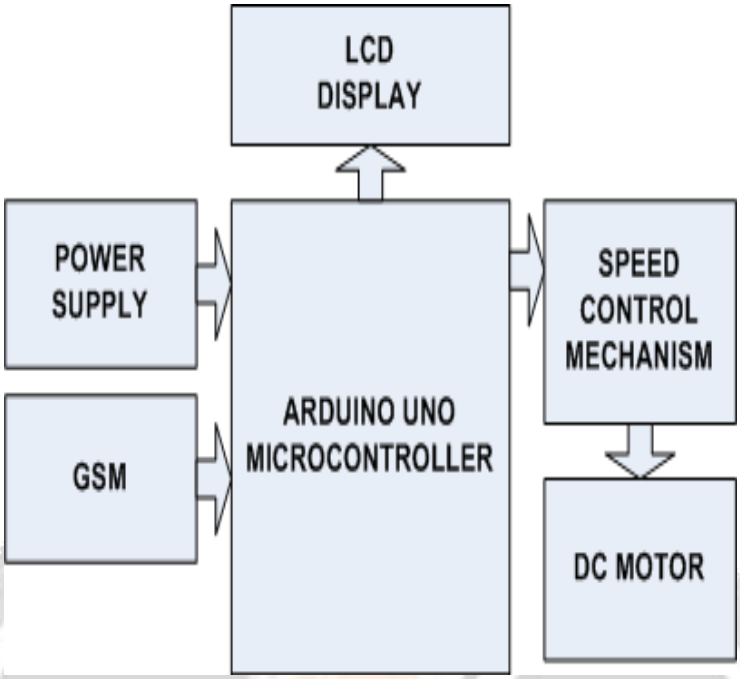

Fig.2 Block Diagram

POWER SUPPLY

An additional concept i.e. power supply kit is added into this project for the supply of Arduino. As Arduino requires 5V DC supply that's why the step down transformer is used to step down the voltage 230 V AC to 9V AC then by using bridge rectifier the 9V AC is converted into 9V DC. then the electrolytic capacitor filter is connected to give pure DC.then the regulator IC is connected which give constant 5 V DC for Arduino.

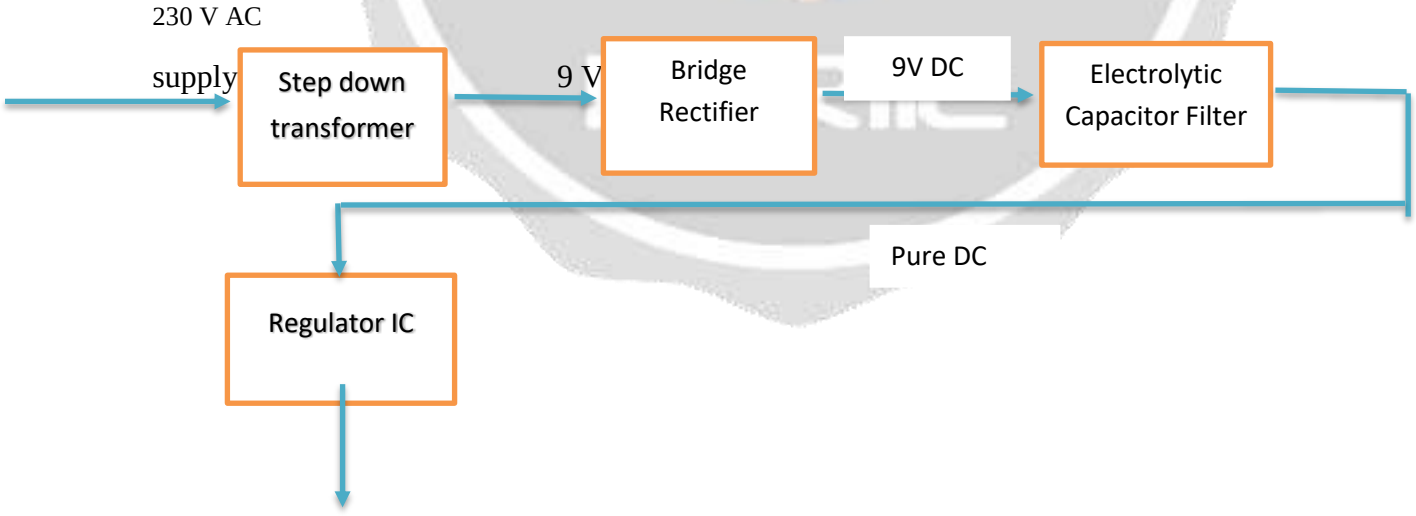

Fig.3 Block Diagram of power supply

FLOW CHART

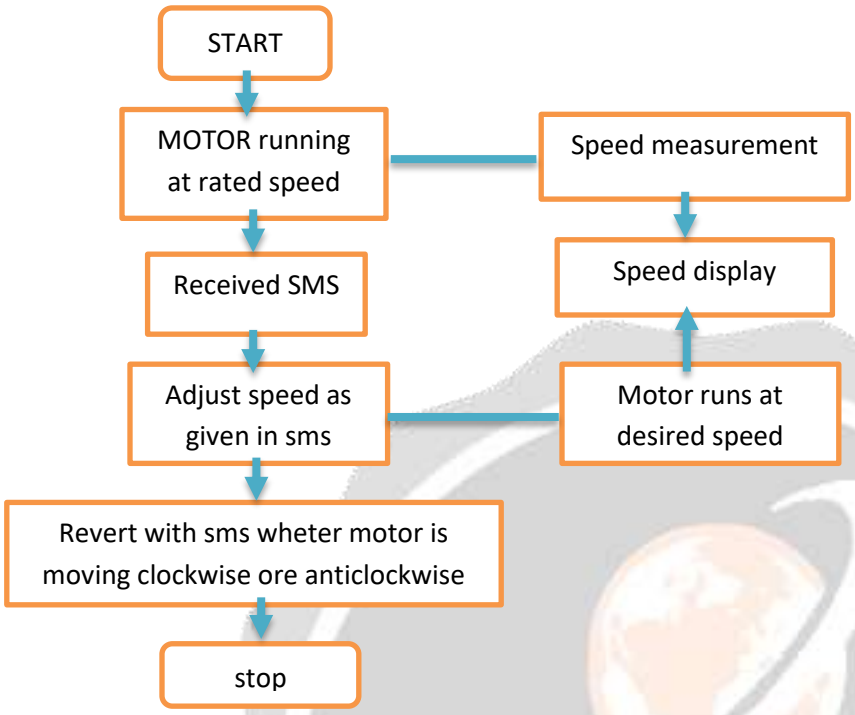

Fig. Flow Chart

ADVANTAGES

1) This is ensure saferty of worker in industrial place.

2) this is easy method to control the speed of DC motor.

3) it is can be operated from long distance.

4) this technology can save our time and energy.

5) it reduces the cost of wiring.

PROJECT MODEL

Fig. Project Model

CONCLUSION AND FUTURE SCOPE

The GSM based DC motor speed control system which is fast and efficient with improved accuracy is designed.The proposed project is implemented with ARDUINO UNO microcontroller using embedded c-language.

To control industrial appliances remotely using GSM based system satisfying user needs and requirements.For ex. We can added on its memorizing power for making it smart machine

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