“NON CONTACT SPEED MEASUREMENT BY MICROCONTROLLER”

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ABSTRACT

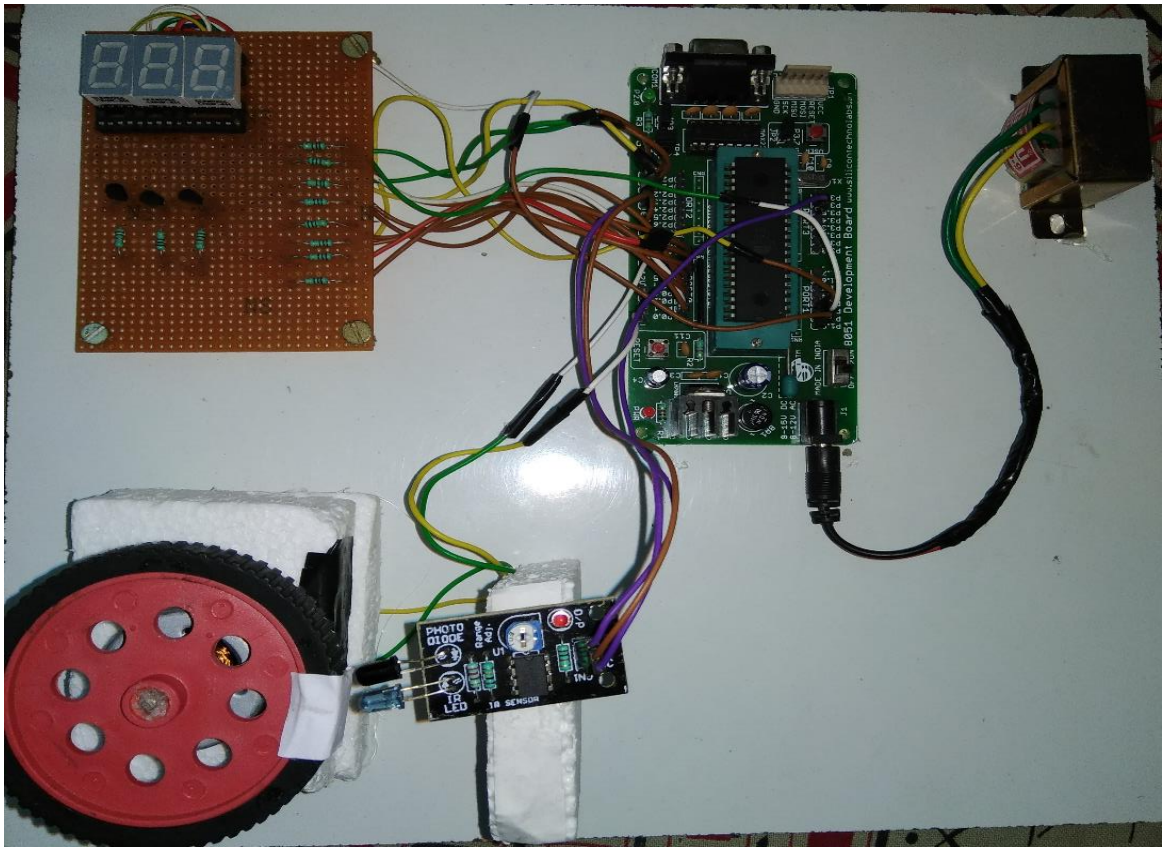
The aim of the project is to design a contactless speed sensing device for a DC motor. Traditional tachometers require a physical contact to the shaft of the motor to measure the speed. In certain applications, where it is not feasible to measure the speed for safety and technical reasons, it is possible for a contactless tachometer to take the readings from a certain distance.

This proposed system uses the IR transmitting and receiving technique. This is achieved by receiving IR rays from a reflecting spot on the shaft of the motor. Such arrangements can measure the rate at which the IR rays are getting reflected back. The project uses a microcontroller of 8051 family. A pair of sensors (Transmitter and receiver) is used to develop a pulse for each reflection that sends an interrupt to the microcontroller. The timer of the controller calculates the speed by each pulse received in a particular time interval and displays the same. The microcontroller is interfaced with an LCD to display the speed.

The concept of the contact-less tachometer can be enhanced and implemented in the bikes, cars for speed measurement, avoiding the use of traditional analog speedometer.

Present project is designed using microcontroller to measure speed of rotating object without any physical contact. Generally in the present speed measurement techniques physical contact is required .This project utilizes the IR sensor and photo diode assembly for sensing physical speed of revolving object. Sensor activation time is so adjusted by calculating the no. of pulses given by the sensor circuits. In this project the speed output given by the seven segment displays is in rev/sec. In noncontact speed measurement technique using 8051 microcontroller (digital tachometer) which can be used for measuring the revolutions/second of a rotating wheel, disc, shaft or anything like that is introduced in this project. The tachometer can measure up to a maximum of 255 rev/sec at an accuracy of 1 rev/sec. What you just need to do is to align the sensor close to the reflective strip (Aluminum foil, white paper or something like that) glued on the rotating surface and the meter shows the rev/sec on the display.

PROJECT

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