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A REVIEW ON RPM DISPLAY FOR BLDC MOTOR WITH SPEED CONTROLLER

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ABSTRACT :- RPM display, speed control, Arduino IDE, IR sensor.The BLDC motors are some of the widely utilized in gadgets like PC hard drives, CD/DVD players and little cooling fans in electronic gear. these are intended for low commotion activity and high proficiency. These prompts the necessities of further developed control techniques to satisfy the genuine need. Many control strategies are created for the control of BLDC engine to get a control technique that has the best exhibitions for any reason is generally popular. ordinarily the BLDC engines have been constrained by potentiometer game plan. Different techniques to control by Arduino and microcontroller is more efficient and has a wide range of applicability and near optimal performance. This mini project deals with Arduino based speed control of a BLDC motor and display of the speed using IR sensor, LCD mechanism

Keyword- BLDC, CD/DVD

I. INTRODUCTION

This is used to control and measure the BLDC motor speed by using an IR speed sensor mechanism.

• There is a need for controlling a DC motor speed in industries that uses drilling, spinning, lathes, elevators etc. therefore this system provides an efficient mechanism for increasing or decreasing the speed.

• The project comprises of three phases.

• The first one is input phase where desired speed is entered using switches.

• The second phase i.e. processing enables a RPM reference of motor by interfacing IR sensor mounted on shaft and microcontroller of 8051 family in the circuit.

• Microcontroller generates PWM pulses according to the input or switches to

regulate the supply of DC power to motor.

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II. BASIC FUCTIONAL DIAGRAM

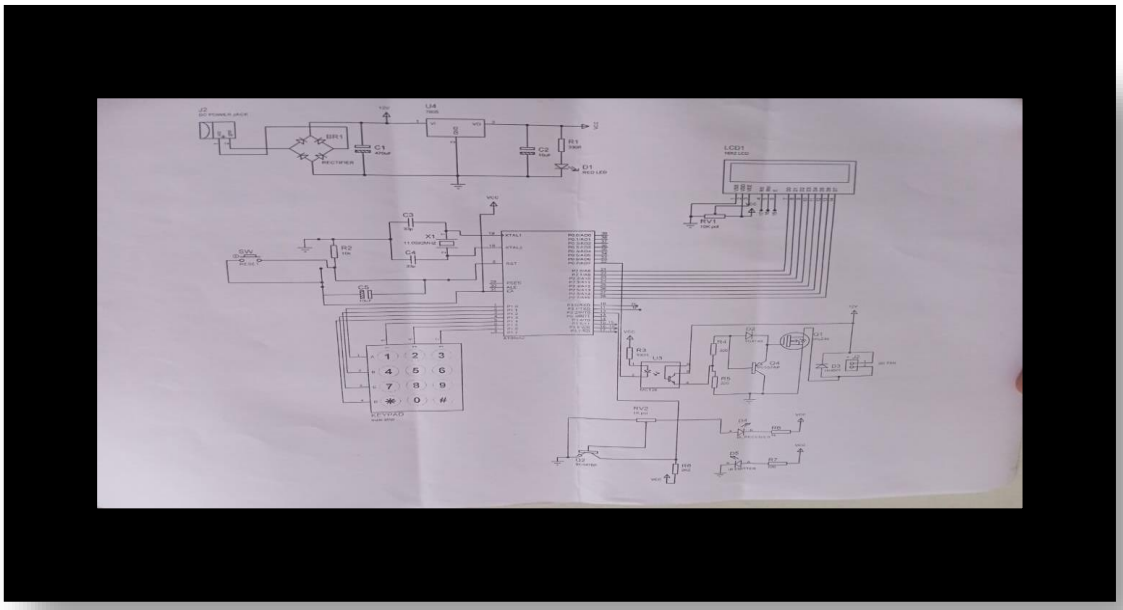

Fig.1 Basic Functional diagram

The above diagram gives an overview of the working of electrical car with solar panel vehicle. Sun furthermore, framework power is the fundamental wellspring of the vehicle. Energy from Sun and from network power is caught by the sunlight based chargers and is switched over completely to electrical energy. The electrical energy subsequently framed is being taken care of to the batteries that get charged and is utilized to run 24 V DC high forces DC series motor. The shaft of the motor is connected to the rear wheel of the vehicle through chain sprocket. The batteries are initially fully charged and thereafter they are charged by panels. This helps in completing the charging-discharging cycle of the batteries, which is very important for proper working of batteries.

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III. BASIC CIRCUIT DIAGRAM

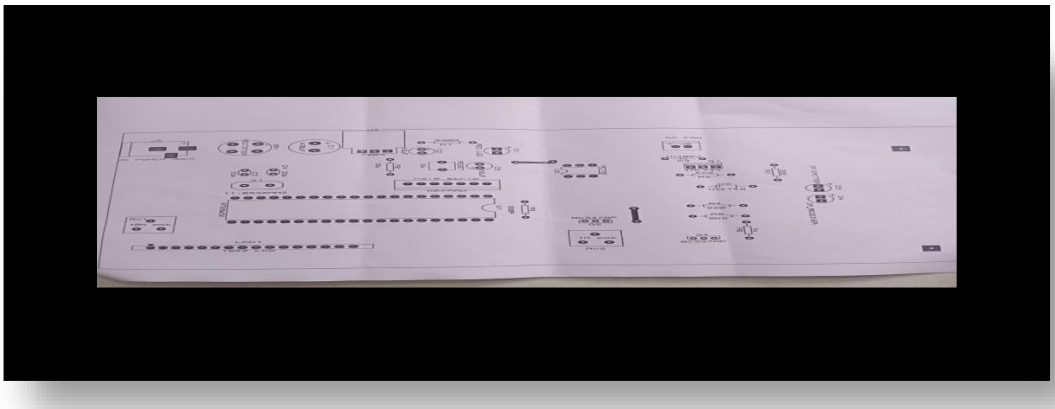

Fig.2 Basic Circuit diagram

It is a four wheeler, two seater vehicle. In this vehicle we have used a belt pulley mechanism. The solar energy is harnessed using solar panels which are used for charging the batteries. The batteries run the motor which drives the wheel of the vehicle. The vehicle which we have made as our project uses a belt pulley mechanism in which the shaft of the motor is connected through the belt pulley system. The power supplied to the batteries is from the solar panels which are giving a total output of 250W and this output is used for charging the batteries. The batteries which we are using are lead acid batteries which are of 24Vrating each of 24V.The belt used in our project is a timing belt which has teeth that fit into a matching toothed pulley. When correctly tensioned, they have no slippage, run at constant speed, and are often used to transfer direct motion for indexing or timing purposes. They are often used in lieu of chains or gears, so there is less noise and a lubrication bath is not necessary

IV. COMPONENTS USED

Various types of electrical components were used for making This projets . A list of these components used with their range and the specific quantities that were required for making electric circuit with solar is given in the following table.

- Push Buttons
- Keypad
- BLDC Motor
- 8051 series Microcontroller
- IR led and Photo diode
- Crystal
- LED Diodes
- Voltage Regulator

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V. WORKING OF THE VEHICLE

Working Principle of BLDC Motor Speed Control with RPM Display System This BLDC motor speed control with rpm show framework chips away at the rule of exchanging dc supply. The exchanging dc supply is acquired by changing the obligation proportion of providing voltages. In this framework, engine drive circuit is set off at various obligation proportion and when it is set off at various obligation proportion then, at that point, engine runs at various velocities. Here for exhibit purposes a fan speed is controlled through microcontroller. At the point when up switch is squeezed then microcontroller set the obligation proportion from 10%to 80% and then this duty ratio voltages are given to motor drive circuit, which set the speed of motor from 0 to 100%. Similarly, for decreasing the speed of motor down switch is pressed again and again until the desired speed is acquired. For displaying the rpm of this motor at LCD display ir sensors have been used here which are interfaced with microcontroller. Microcontroller counts each revolution of motor after receiving the speed signal from ir sensors then displays this speed at LCD display in form of percentage like 10%,20%80% or 100%. So, we can drive the BLDC motor at out desired speed.

5.1 Advantage

1. This BLDC motor speed control with rpm display system could be used in spinning mills where spinning motors could be derived through this system.
2. This BLDC motor speed control with rpm display system could be with elevators and drilling machine for controlling their speed.
3. This system is more compact, more efficient and less costly as compared to other motor drive systems.
4. This system change the speed of motor more precisely as compared to other systems.
5. This system is very easy to drive

VI. CONCLUSION

The sun based vehicle takes care of numerous issues connected with the climate and is the best contamination free strategy. Sun powered vehicles truly do have a few burdens like little speed range, introductory expense is high. Sun oriented cells that give around 30-35% productivity. The sun oriented vehicles have a gigantic imminent.

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