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EXPERIMENTAL STUDY AND PERFORMANCE OF PERMANENT MAGNET AND WOUNDED TYPE DC MOTOR USING OF REGULATOR

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Abstract:
The DC motor has important role in moving system because of mostly use in the industry. The speed control of DC motor is increasingly getting sophisticated and precise. The Speed of the DC motor is controlled by with the help of controlling the armature voltage. There are various methods of speed control of DC drives namely field control, armature voltage control.

Keywords:
Experimental process, Permanent Magnet DC Motor, wounded type DC Motor.

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1. INTRODUCTION

DC motors are provided the high starting torque, which are required for many applications. By using of speed control system, we are obtained the below and above the rated speed. In general, armature voltage control method is widely used to control the DC drives. In this method, a controlled rectifier, or chopper is used but due involvement of power electronics elements. The DC motor works on the principal, when an electric current carrying conductor is placed in a magnetic field; it experiences a torque and has a tendency to move.

2. EXPERIMENTAL PROCESS

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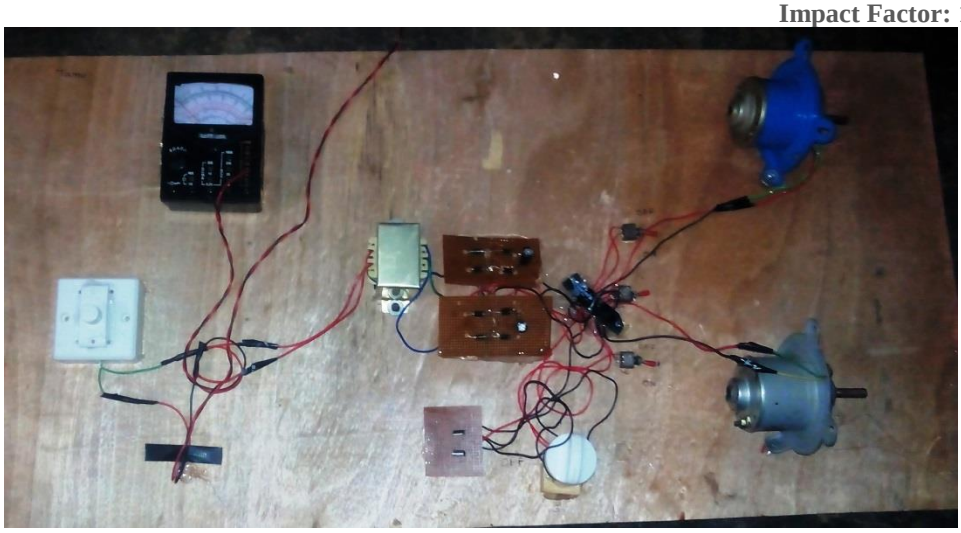

Figure 1: Experimental setup

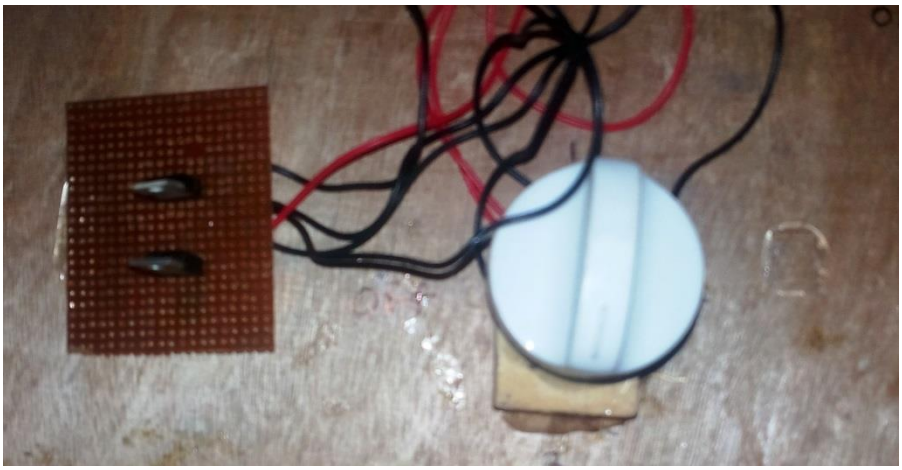

Figure 2: Voltage regulator

3. RESULT AND DISCUSSION

3.1.WOUNDED TYPE D.C. MOTOR

12V D.C., 9V D.C., 6V. D.C. obtained by regulator
Current = 3 Amp.

Table 1: Voltage and R.P.M. using of Wounded type D.C. Motor

Sr. No.	Apply the Voltages in D.C.	R.P.M. measured by Tachometer
1	12	1440
2	9	1000
3	6	700

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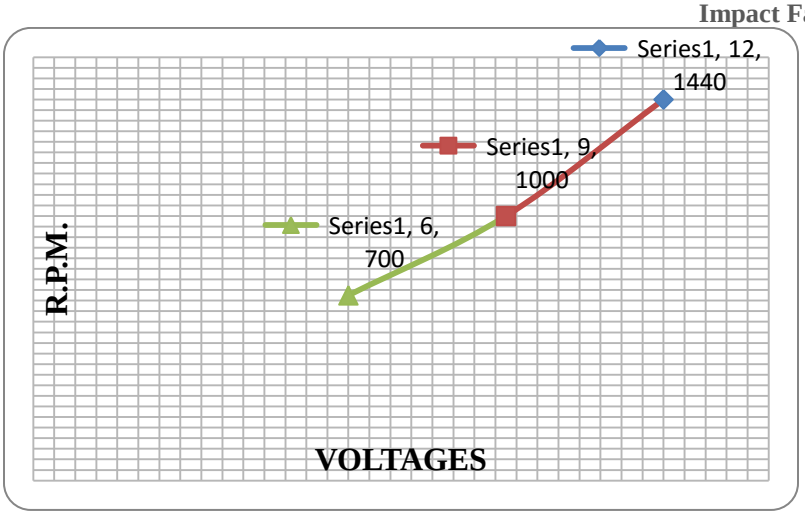

Figure 3: Voltage and R.P.M. using of Wounded type D.C. Motor

We are finding out the maximum R.P. M. by using of the 12V.D.C.
P= V I
P= 12 X 3
P =36 W

3.2.PERMANENT MAGNET TYPE D.C. MOTOR

12V D.C., 9V D.C., 6V. D.C. obtained by regulator
Current = 3 Amp.

Table 2: Voltage and R.P.M. using of Permanent magnet type D.C. Motor

Sr. No.	Apply the Voltages in D.C.	R.P.M. measured by Tachometer
1	12	2400
2	9	1800
3	6	1200

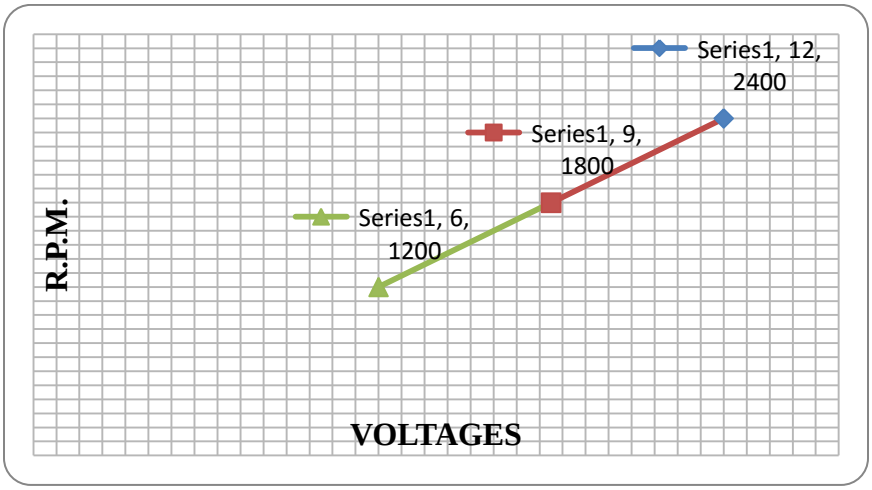

Figure 4: Voltage and R.P.M. using of Permanent magnet type D.C. Motor

We are finding out the maximum R.P. M. by using of the 12V.D.C.
P= V I
P= 12 X 3
P =36 W

Increase R.P.M. = Maximum R.P.M. by Permanent magnet type D.C. Motor - Maximum R.P.M. by Wounded type D.C. Motor
= 2400-1440
= 960 R.P.M.

4. CONCLUSIONS

During the Experimental study we are finding out the various R.P.M. with the help of speed control. Speed control are device, which are varies the voltage .These voltage are used in operated the D.C. motor. We are obtaining the Maximum 2400 R.P.M. by Permanent magnet type D.C. Motor and Maximum 1440 R.P.M. by Wounded type D.C. Motor, in this way increase 960 R.P.M.

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