

AUTOMATION OF DC MOTOR USING ANDROID MOBILE APPLICATION

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ABSTRACT

The electric drive systems are used in industrial applications to meet higher performance and reliability. The Direct Current motor is an often used equipment in many industrial applications requiring variable speed and load characteristics due to its easy way of controllability. Due to advancement of wireless technology, such as GSM, Bluetooth, Wi-fi, ZIGBEE. Among these wireless technologies, Bluetooth is more often implemented. Speed controlling of DC motor has a huge role in the period of industrialization. There are different modes for controlling the DC motor using Bluetooth technology. The signal is dispatched from the smart phone that is linked to Arduino UNO board by way of Bluetooth module. PWM techniques is usually adopted to the control speed of DC motor.

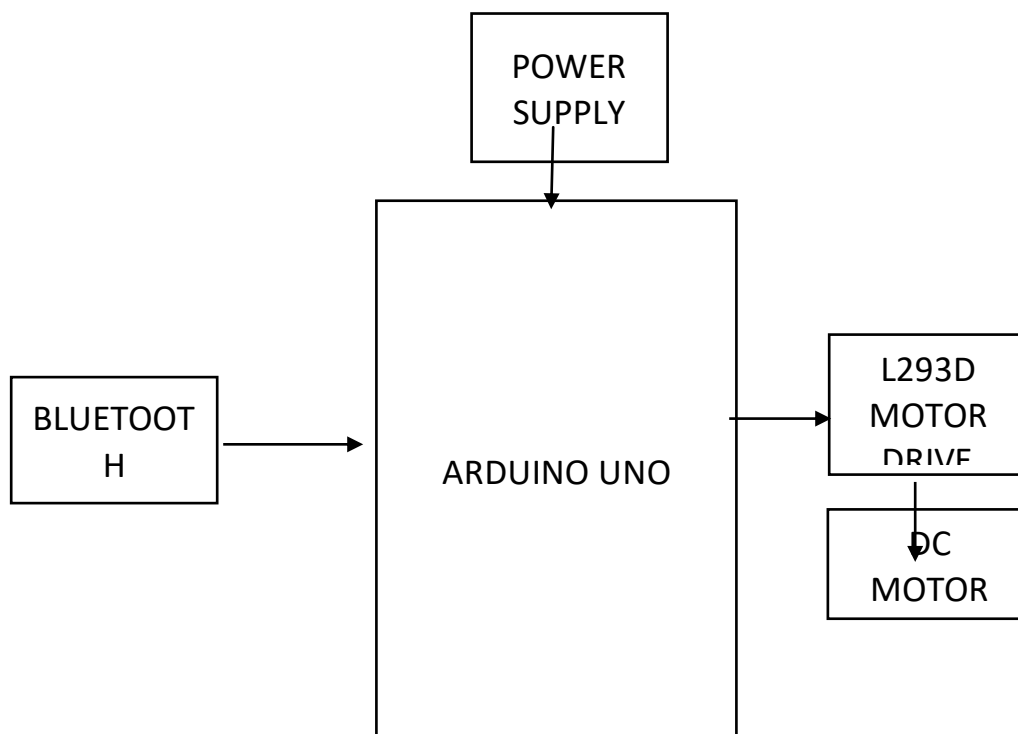
I.INTRODUCTION

Research has shown that there are many systems which partially or fully control the speed of the DC motor & vehicle. But many of them are still in progress as they are not feasible to implement. Others are too developing in coming years. The main causes of road accidents are drunk driving, system failure, collisions due to obstacles, existing speed control limits etc. A lot of rules are implemented by the government to avoid accidents such as helmet and seat belt compulsion etc. But there is no efficient way to control speed of the system which can prevent road accidents. So there is a need for such a system that controls speed with respect to particular road types. Due to this proposed method the accidents related to rash driving and collisions will be reduced.

II. METHODOLOGY

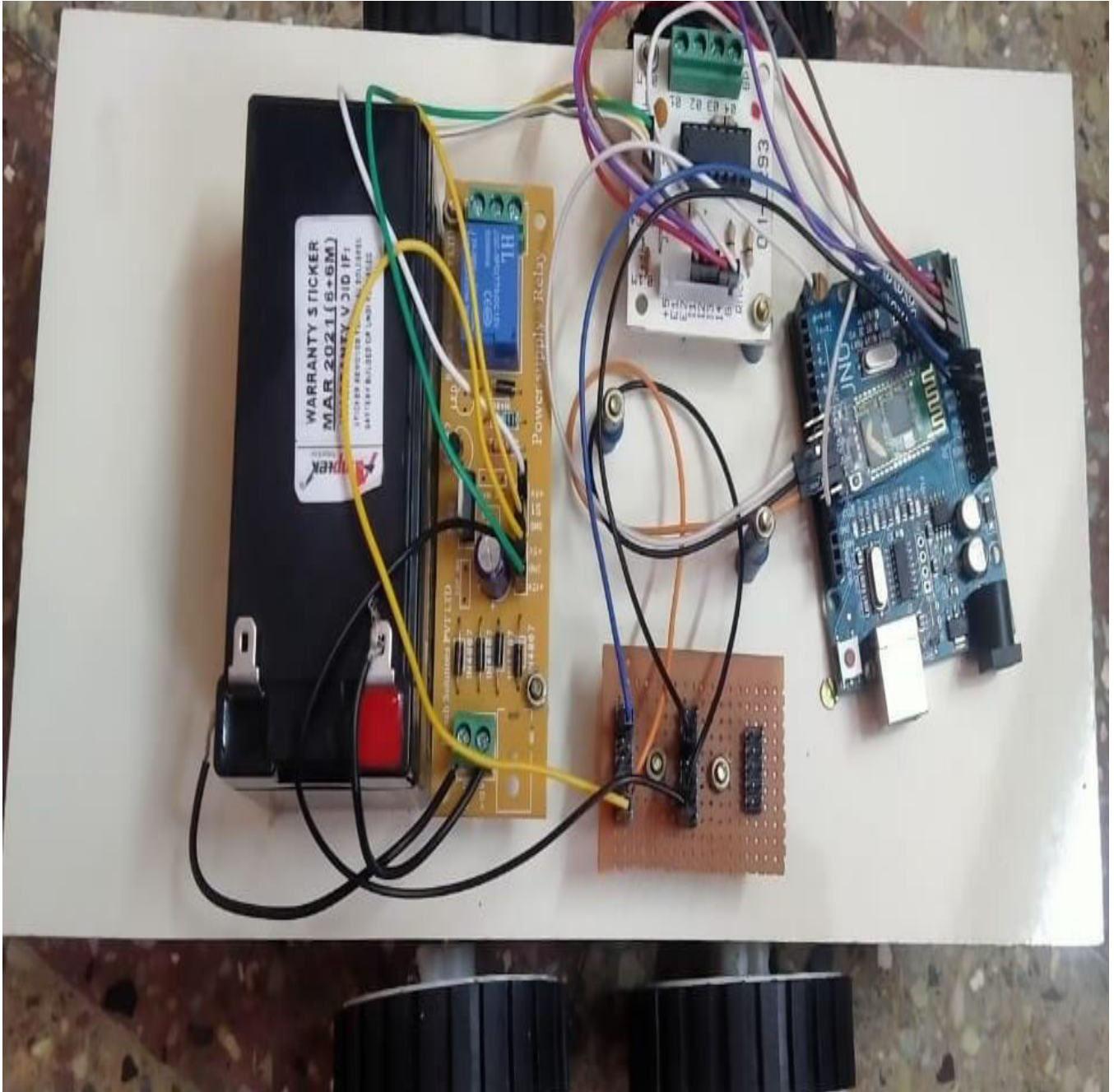
The DC motor is an electrical machine that transforms electric energy into mechanical energy in the form of rotation. The movement of DC motor is generated by the physical behavior of electromagnetism. DC motors have inductors, which produce the magnetic field used for movement. An electromagnet, is a piece of iron wrapped with a coil that has voltage applied in its terminals. If two magnets are fixed at both ends of this electromagnet, the repulsive and attractive forces will produce a torque. There are two problems to solve in the DC motor: feeding the current to the rotating electromagnet without the wires getting twisted, and changing the direction of the current at the appropriate time. These problems are solved by two devices: a split-ring commutator, and a pair of brushes. The commutator of the motor has two segments which are connected to each terminal of the electromagnet, Besides the two arrows which apply electric current to the electromagnet. In real DC motor there are three slots instead of two brushes. This way, as the electromagnet is moving its polarity changes and the shaft keeps rotating. Even if it is simple, it will work great. There are several issues which make these DC motors more energy inefficient and mechanically unstable. Since polarity in the electromagnet is changed, at some velocities polarity is changing too soon, which results in reverse impulses and sometimes is changing too late, producing sudden “stops” in rotation of the motor. Whatever the problem, these issues produce current peaks and mechanical instability.

III. BLOCK DIAGRAM



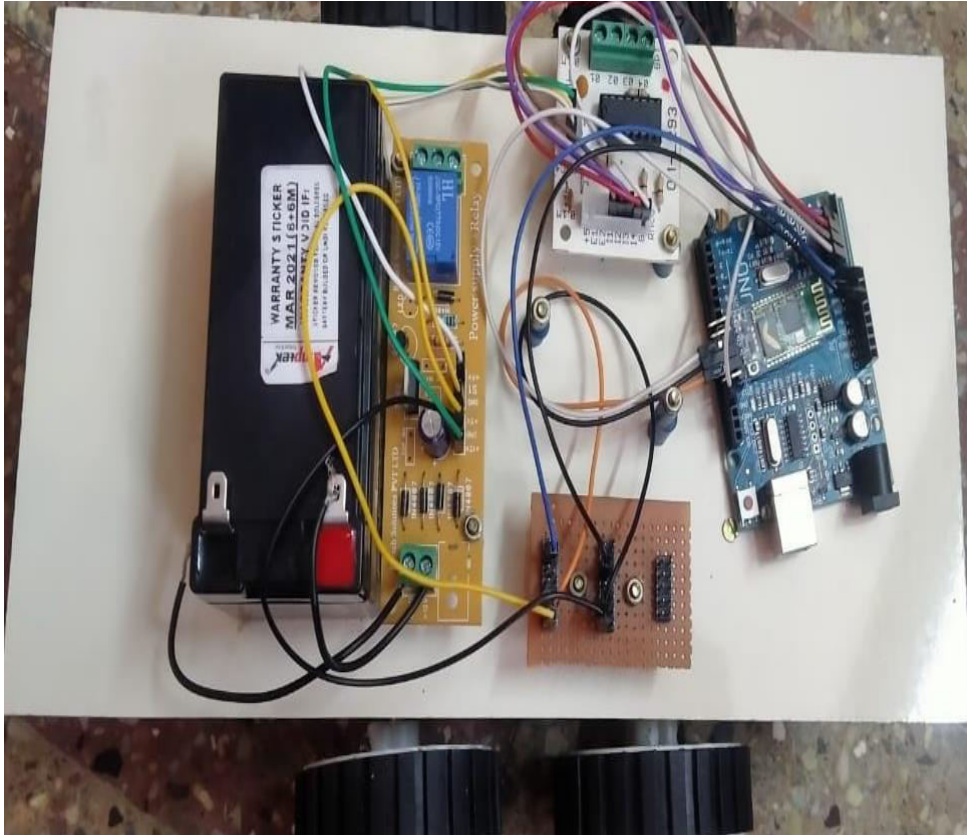
IV. MODELLING & ANALYSIS

The actual model is shown in this section.



V.RESULTS & DISCUSSION

The Project is implemented successfully and the speed and direction of the dc motor is controlled by Bluetooth module.



VI. CONCLUSION

Thereby speed and direction controlling of the DC motor are done. In such wise wireless communication is also obtained.

VII. REFERENCE

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