**Abstract**

The project is designed to develop a four quadrant speed control system for a DC motor. The motor is operated in four quadrants i.e. clockwise; counter clock-wise, forward brake and reverse brake. It also has a feature of speed control.

The four quadrant operation of the dc motor is best suited for industries where motors are used and as per requirement as they can rotate in clockwise, counter-clockwise and also apply brakes immediately in both the directions. In case of a specific operation in industrial environment, the motor needs to be stopped immediately. In such scenario, this proposed system is very apt as forward brake and reverse brake are its integral features.

 Instantaneous brake in both the directions happens as a result of applying a reverse voltage across the running motor for a brief period and the speed control of the motor can be achieved with the PWM pulses generated by the Arduino. Remote operation is achieved by any smart-phone/Tablet etc., with Android OS, upon a GUI (Graphical User Interface) based touch screen operation. Bluetooth device is provided to connect with android application device for the operation of the motor which are interfaced to the Arduino that provides an input signal to it and in turn controls the speed of the motor through a motor driver IC.

This project can be enhanced by using higher power electronic devices to operate high capacity DC motors. Regenerative braking for optimizing the power consumption can also be incorporated.

**Block Diagram**

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