
ADVANCED EMBEDDED REMOTE CONTROL ROBOT NAVIGATION SYSTEM USING RF

ABSTRACT

The main aim of this project is to design a system that behaves like a robot and control it using RF technology. Robot is a system that contains sensors, control systems, manipulators, power supplies and software all working together to perform a task. Designing, building, programming and testing a robot is a combination of physics, mechanical engineering, electrical engineering, structural engineering, mathematics and computing.

This project describes a new economical solution of robot control systems. The presented robot control system can be used for different sophisticated robot applications. The control system consists of an RF transmitter and receiver, a microcontroller that collects data from the RF receiver and controls the robot.

The RF modules used here are STT-433 MHz Transmitter, STR-433 MHz Receiver, HT12E RF Encoder and HT12D RF Decoder. Momentary switches are interfaced to the microcontroller. The microcontroller continuously monitors the status of the switches and passes the data to the encoder. The encoder continuously reads the status of the switches, passes the data to the RF transmitter and the transmitter transmits the data.

At the receiving end, the RF receiver receives this data, gives it to RF decoder. This decoder converts the single bit data into 4-bit data and presents it to the microcontroller. Now, it is the job of the controller to read the data and perform the corresponding action i.e., to move the robot back, front, left or right.

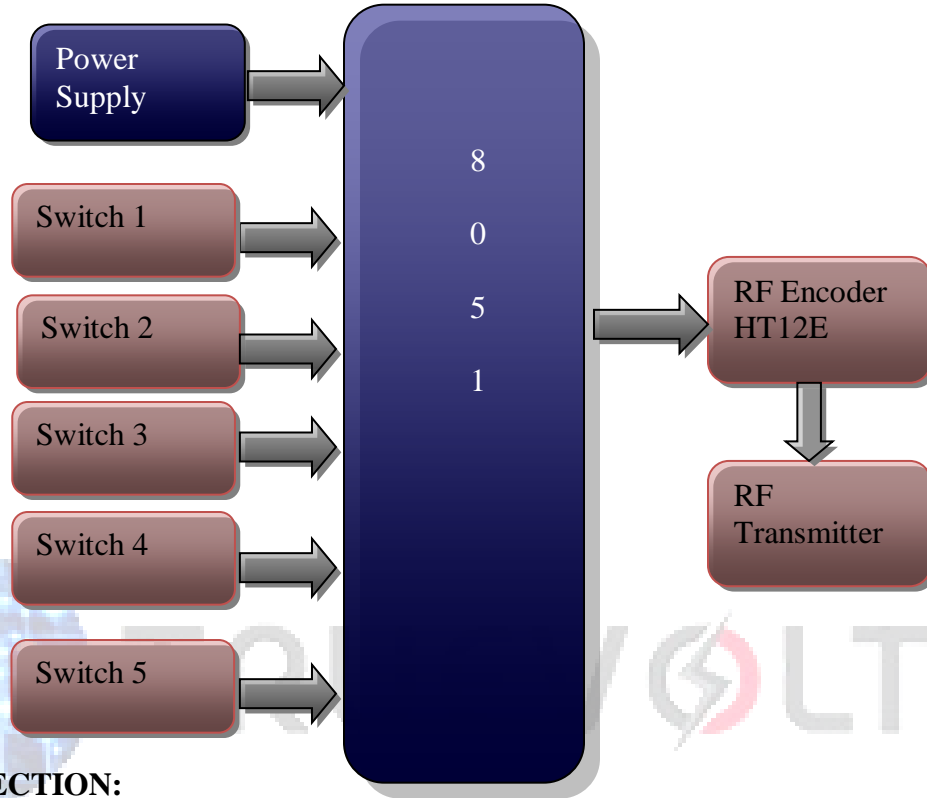
This project uses regulated 5V, 500mA power supply. 7805 three terminal voltage regulator is used for voltage regulation. Bridge type full wave rectifier is used to rectify the ac output of secondary of 230/12V step down transformer.

APPLICATIONS:

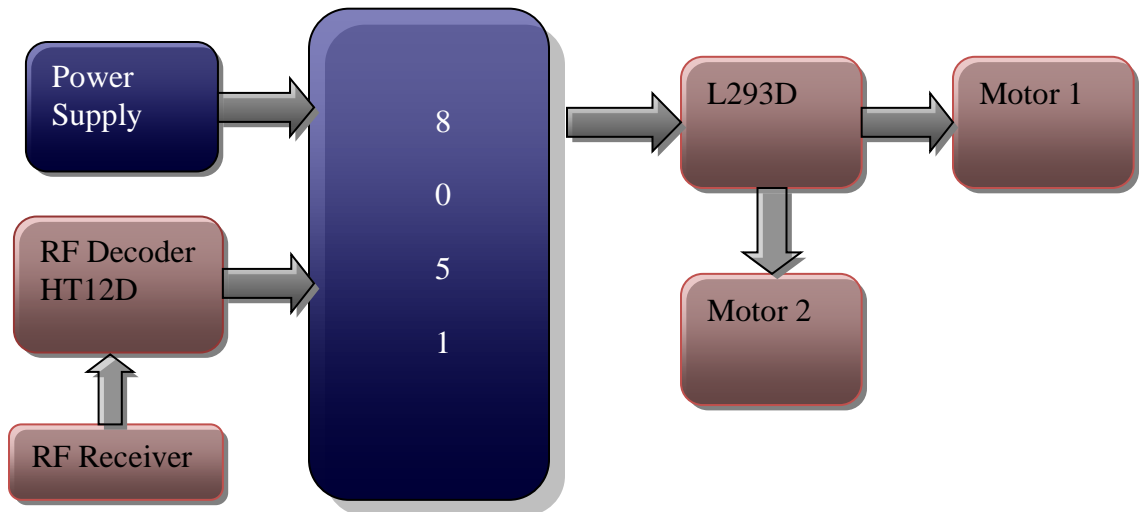
- Industrial applications
- Robotic applications
- military

BLOCK DIAGRAM:

TRANSMITTER SECTION:



RECEIVER SECTION:



POWER SUPPLY BLOCK DIAGRAM:

