

SPY ROBOTIC MODULE USING ZIGBEE

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ABSTRACT

The main aim is to satisfy and meet the changing of human by robotics. Robotics and automation has been a cadre role playing throughout in such applications. This project focuses on building a RF based robot attached with wireless camera for monitoring purposes. This robot sends the signal to the base station using wireless camera. One of the major application of this project can be used to control the movement of the robot. The transmitter sends the signal to the RF receiver mounted on the robot through RF transmitter at the base station, with this feature the robot can transmit real time videos with day vision capabilities to identify the victims in the remote areas.

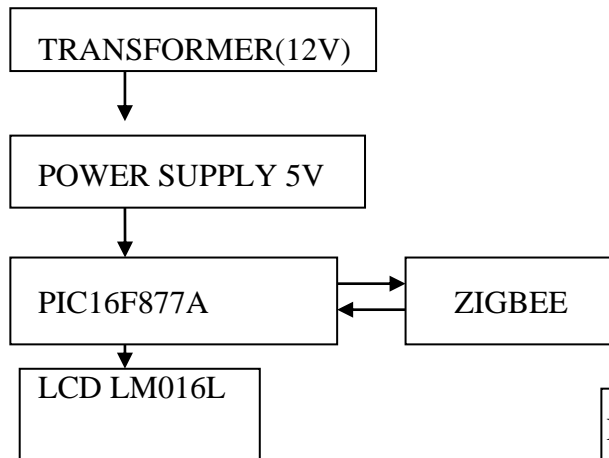
INTRODUCTION

The objective and design of our project encourages developing a robotic vehicle based on RF technology for the remote operation connected with the wireless camera mounted on the robot for monitoring purpose. The robot is

embedded with pic16f877a (8bit) series microcontroller for moving and sensor interfacing operation and can be used for monitoring purposes.

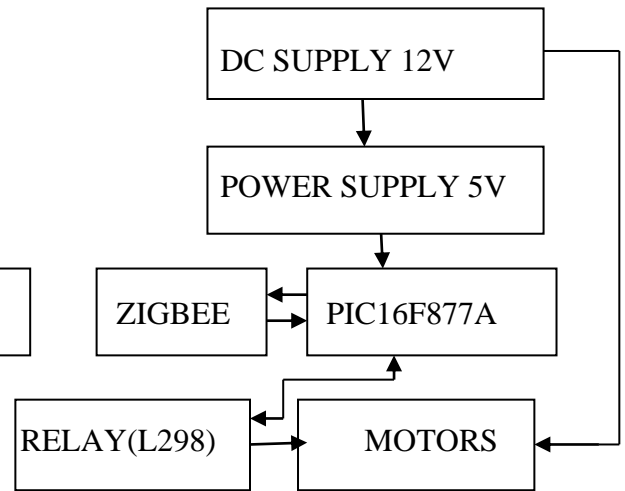
The transmitting module consist of the push buttons that send the commands(ie.,single character) to the receiving module for controlling the movement of robot either to stop, forward, reverse, left and right. In the receiving module of the robot two motors are interfaced with the pic16f877a series of microcontroller to control its movement via relays using IC ULN2003. The remote control (RF transmitter) has a range of 100 to 200m(approx) that transmits the signals to the RF receiver. The receiver collects and decodes the received signals before feeding it to the microcontroller to drive the DC motors via motor drivers. The wireless camera is used for spying purpose.

BLOCK DIAGRAM TRANSMITTER

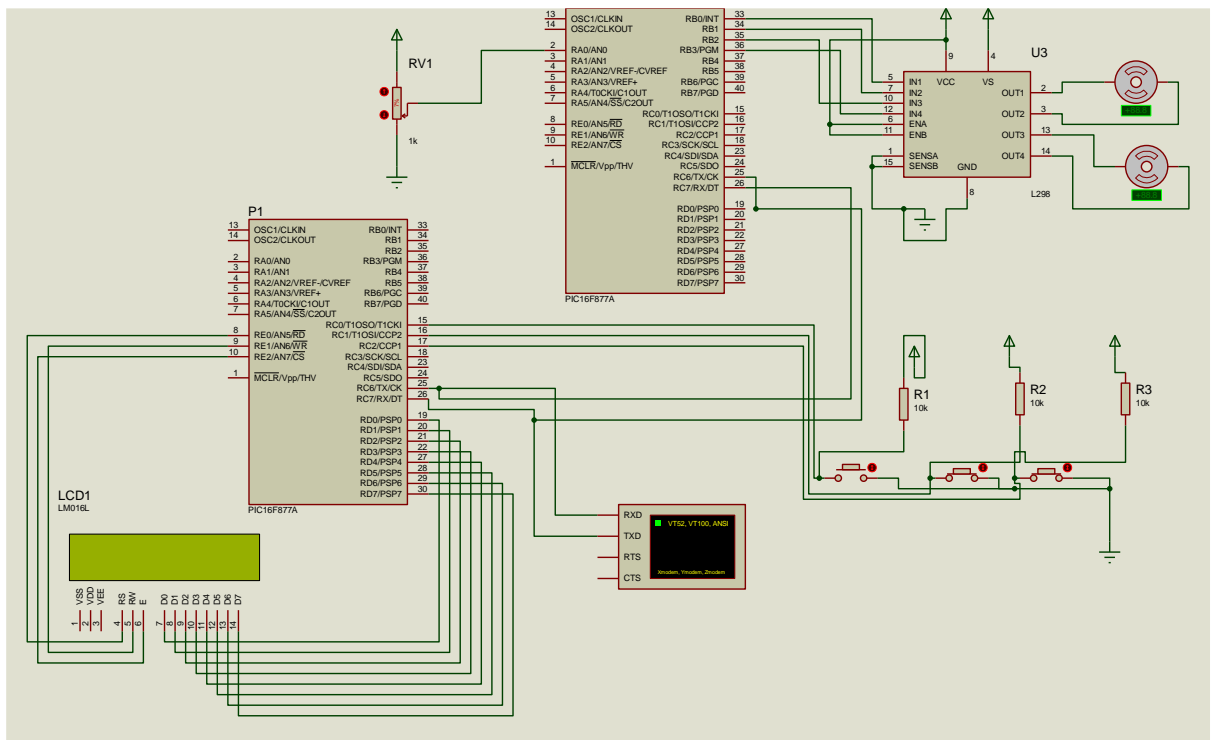


ROBOT DESIGN

RECEIVER



SIMULATION MODEL



ZIG-BEE

- Zig-Bee is a low-cost, low-power, wireless mesh network which reliable in monitoring applications. Zig-bee devices have low latency, which further reduces average current.
- Zig-Bee chips are typically integrated with radios and with microcontrollers that have between 60-256 KB flash memory. Zig-Bee operates in the industrial, scientific and medical (ISM) radio bands.

IR SENSOR

- Infrared technology is used in wide variety of wireless applications. The main areas are sensing and remote controls.
- Infrared Transmitter is a light emitting diode (LED) which emits infrared radiations. Hence, they are called IR LEDs. Even though an IR LED looks like a normal LED, the radiation emitted by it is invisible to the human eye.
- Infrared receivers are also called as infrared sensors as they detect the radiation from an IR transmitter.

UNIVERSAL ASYNCHRONOUS RECEIVER / TRANSMITTER (UART)

UART is a piece of computer hardware that translates data in parallel and serial forms. A UART is usually an individual (or part of an) integrated circuit used for serial communications over a computer or

peripheral device serial port. UARTs are included in microcontrollers.

Many modern ICs now come with a UART that can also communicate synchronously, these devices are called USART.

WIRELESS CAMERA

The wireless CCD camera works on 12 volts DC supply. The camera has a receiver, which is placed in the remote station. Its output are in the form of audio and video signals. These signals are directly sent to a television or a computer through a tuner card.

This CCD camera is placed on the robot. The camera captures the audio and video signals and sends those signals to the remote station and with the help of the camera receiver which is connected to the television or a computer through we will be able to see the captured signals. This is a mini wireless monitoring video camera and wireless receiver set for home and small business surveillance, security and is used by us for demonstration purpose.



ADVANTAGES

- Robot as a live telecast
- Robot as a Night vision
- Robot as obstacle detector
- Robot as distance measurement
- Robot as mobile surveillance

FUTURE ENHANCEMENT

We can connect this system directly to internet by using zig-bee with Wi-Fi. By using internet we can control the system via remote location.

Night vision camera can be used for the vision of the robot. We can also control the device by giving it voice command thereby making it a voice recognition system.

CONCLUSION

The primary need for our project would be accuracy and able to view the things accurately that are currently happening in the surrounding area. The robot will move

depending on the motor direction based upon the input we give through command by remote.

It display that the current operation is going on as example forward robot, near to object, clear up. With the help of the camera we are able to view the things that are happening in the surrounding area where the robot is hidden.

By keeping the circuit easy and simple, most users will be able to use it easily.

By using the signals, encoding is done and signal is sent through the transmitter. At the receiver end, these decoded signals are given as input to drive the motor. It can be used as a spy robot for short distances. Long range communications can be done using GSM or Zigbee with wi-fi.

7. REFERENCES

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