MOBILE ROBOT TROLLEY

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ABSTRACT

This project is a Mobile Robot Trolley, this trolley changes its position in a space and avoiding obstacles while carrying out its task, the aim of this project is to help the shoppers carry their bought items or goods in a shopping malls or grocery shops. There are 2 microcontrollers used.

The first microcontroller is placed on the transmitter board which deals with IR transmitter, RF receiver, obstacle sensors, and motors, the second microcontroller is placed on the receiver board which deals with the IR receives and RF transmitter, both microcontrollers operate simultaneously.

In the transmitter board the PIC16F873A generated a pulse and sends it through the transistor biasing its base to act as a switch to the IT transmitter, after the signal is sent it is then received by TSOP1138 IR receiver, then the PIC senses the signal from the receiver and progress it to hands it over to the RF SR 315 MHz transmitter and encodes the signal through PT2262 and through the DIP switch to give it the addressing then through the antenna its sent back to the transmitter board where it's received by the RF receiver through the PT2272 to check for the DIP address, then the signal is decoded and handed to PIC as an acknowledgment of receiving the original IR signal. When the transmitter receives the signal it informs the power window motors to follow the direction of the received signal, this continues as long as there is no obstacle detected, this is achieved by LM358N IC which compared the input voltages from IT Emitter and Detector.

The Mobile Trolley consumes less power also it is safe to use, and it can be implemented in any utility store to perform various tasks.

Keywords: PIC16F873A, RF module, power window motors, IR sensor, TSOP1138, RF SR 315 MHz, PT2272, PT2262, and LM358N.