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Bomb Diffusing Robotic Arm

Sneha Arora[1], Mrs Ruchi Varshney[2], Saksham Agarwal[3], Shivani[4], Sneha Gupta[5]

Assistant Professor, M.I.T Moradabad[2]

B. Tech Student (EC), M.I.T Moradabad[1, 3, 4, 5]

Abstract: This paper presents an application of bomb diffusion. This robot moves in four directions like forward, backward, right and left. Here the robot receives the signal from color sensor and then move accordingly. The signal received by robot is in the form of light. This robot contains a camera at the receiver end. The display of the view captured by the camera is on transmitter end which contains LCD. The main application of this robot is to diffuse the metallic bombs which are placed inside the digs and the places where human can't reach. A robotic arm is a type of mechanical arm, usually programmable, with similar functions to a human arm.

Keywords: Microcontroller (at 89s52), Light to frequency converter, Camera, LCD, DC servo motor and Robotic arm.

I. INTRODUCTION

Nowadays, robots are increasingly being integrated into working tasks to replace humans especially to perform repetitive task. In general, robotics can be divided into two areas, industrial and service robotics.

International Federation of robotics (IFR) defines a service robot as a robot which operates semi or fully autonomously to perform services useful to the well being of humans and equipments, excluding manufacturing operations. These robots are currently used in many fields of applications including office, military tasks, hospital operations, dangerous environment and agriculture.

This is unique because we are working on different type of technology with unique concept. In this project make robot that diffuse the bomb. The robot contains unique feature such as color detecting. This robot moves according to color detecting concept. This robot walk: forward, backward, right, left. According to different types of color coding is done in Keil Software.

II. MODE OF THE PROJECT

In this project the different types of modes are:

A. Transmitter Mode: In this mode we use the color detecting and display concept. In this concept we use color sensor that sense the different type of color such as: White, Black, red, Blue, Green, Yellow etc. So generate FSK 435MHZ signal send to robot and this robot operate according to command.

B. Receiver Mode: At this part the robot operates in four directions. This part also contains a camera.

This robot has a unique feature such as: Anti-accident avoiding feature, the Depth detection and width protection, The Bomb detection by metal detector and indication on LED.

III. COMPONENTS AND SOFTWARE USED

A. Transmitter:
The main components of Transmitter part are: Microcontroller (at89s52), ADC 0809, Ht-12e, Ht-12d, RF Modulator, Color sensor.

B. Receiver:
Sensor plates, IR sensor, LM-339, Optocoupler, Darlington pair of transistor.

C. Software used:
The Proteus Software is used for the circuit designing. Keil Software is used for the coding and the ARES is used for the PCB designing.

IV. PROJECT METHODOLOGY

In this project make a project in different modes:

Ist Mode:
In this mode we design overall frame script such as:
Idea of project,
Components list,
Circuit diagram.

2nd Mode
In this mode the following things are done- Calculate the components value, decide the component rating, Name of components that may be used in the project and in last purchase the component.

3rd Mode
This mode consist of the following-
Assemble the components,
Test the soldering or not and a circuit design on PCB.

4th Mode
In this mode Keil software used for coding are used as follows first a code is design, assembly or Embedded or C, Hex file is created.

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5th Mode

In this mode a circuit diagram is design on Proteus for simulation.

6th mode

In this mode the top-Win software is used.

7th Mode

In this mode the features are tested.

V. CONCLUSION

This is a user friendly project which uses robotic arm for diffusing the bomb by cutting its wire through color based coding a webcam for taking images. The work when provide good research knowledge on robotic arm.

The result of the system adopts due to environmental condition but it can be improving the camera quality.

REFERENCES

[1] Rafael C.Gonzalez and Richard E.Woods, "Digital Image Processing". Third Edition, Vil.3, Pearson Publications.
[2] Alessandro Golfarelli, Rossano Codeluppi and Marco Tartagni "Thee self-Learning Multi-Sensing Seliction Process: Measuring Objects One by One", ARCES-LYRAS LAB University of Bologna, Campus of Forli, 1-4244-1262-5/07/$25.002007IEEE, IEEE SENSORS 2007 Conference.
[3] "The 8051 microcontroller and the embedded system" (second edition) by Mohammad Mazidi Janice G. Mazidi & Rollin D. Mckinlay.
[4] "Power Electronics" by M.D Khanchandani, K.B. Singh (1998).
[5] Mohd Ashiq Kamari Yusoffa, Reza Ezuan Saminb, Babul Salam Kadar lBrahimc," Wireless Mobile Robotic Arm", International Symposium on Robotics and Intelligent Sensors 2012 (IRIS), July 2012.
[6] Wan Muhamad Hanif Wan Kadir, Reza Ezuan Samin, Babul Salam Kader Ibrahim, "Internet Controller Robotic Arm", International Symposium on Robotics and Intelligent Sensors 2012(IRIS), July 2012.