**COLOR TRACKING ROBOT USING A CAMERA ABSTRACT**

The main aim of this project is to design a Robotic Vehicle for colour tracking that can be controlled by a human operator using a laptop. Colour tracking is the ability to take an image, isolate a colour and extract information about the location of a region of that image that contains just that colour. To specify colour, you need to define a minimum and maximum allowable value for three colour channels. Every unique colour is represented by a red, green, and blue value that indicates how much of each channel is mixed into the unique colour. In our project colour tracking is done by using image processing.

**Image processing** is any form of signal processing for which the input is an image, such as a photograph or video frame the output of image processing may be either an image or a set of characteristics or parameters related to the image. Image processing usually refers to digital image processing, but optical and analog image processing also are possible. We designed a colour tracking robot composed of wireless camera and several sensors in an environment, and show object avoiding and tracking methods necessary for providing diverse services desired by the people. The robot has a webcam mounted on top of it which captures images continuously. Image processing toolbox helps to process these images to detect pixels in the image. It finds area and centroid position of object. External Interfaces feature helps to set up a serial port object which send appropriate output to the microcontroller which controls DC motor.

HARDWARE REQUIREMENTS:

* P89V51RD2 microcontroller working at 11.0592 MHz.
* Onboard RS232 interface (DB9 Female Connector) for UART communication.
* A wired camera.

SOFTWARE REQUIREMENTS:

* Keil
* Flash magic
* Matlab