Object Tracking System

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Abstract—**Microcontroller is an existing, challenging and growing fields, it will serve the industry for decades to come. To meet the challenges of this growing technology, it is necessary to be conversant with the programmable aspect of the microcontroller. The purpose of this project is to implement the various concepts of microcontroller and embedded designing environment. This project "OBJECT TRACKING SYSTEM" fully utilizes microcontroller futures &embedded technology concepts to minimize the complication of digital gates, size and cost too. This system can track various objects with the help of provided parameters. This project would develop keeping time and ease of human ability. It also gives future provision to users. This project would be useful for defense and military as well as entertainment purposes.**

I. INTRODUCTION

The object tracking system is a device that tracks the object continuously. It forms a base for various applications such as missile detection and tracking, enemy detection and tracking and random object tracking. Vision is the most important of all senses. This system is an ensemble of vision and software technologies Mobility is an aspect that can take this system to new heights.

LITERATURE SURVEY

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JAVED,MUBARAK SHAH Published in: Journal, ACM Computing Surveys (CSUR).

OBJECT TRACKING SYSTEM

The goal of this article is to review the state-of-the-art tracking methods, classify them into different categories, and identify new trends. Object tracking, in general, is a challenging problem. Difficulties in tracking objects can arise due to abrupt object motion, changing appearance patterns of both the object and the scene, nonrigid object structures, object-to-object and object-to-scene occlusions, and camera motion. Tracking is usually performed in the context of higher-level applications that require the location and/or shape of the object in every frame. Typically, assumptions are made to constrain the tracking problem in the context of a particular application. In this survey, we categorize the tracking methods on the basis of the object and motion representations used, provide detailed descriptions of representative methods in each category, and examine their pros and cons. Moreover, we discuss the important issues related to tracking including the use of appropriate image features, selection of motion models, and detection of objects.
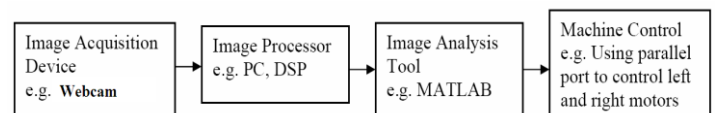
II. HARDWARE ARCHITECHTURE AND IMPLEMENTATION

Fig1**:** BLOCK DIAGRAM OF AUTONOMOUS OBJECT TRACKER

WORKING

1. Initialize Web-cam
2. Capture the frame.
3. Select particular matrix (R-G-B).
4. Threshold the image.
5. Select largest spot.
6. Find the centroid.
7. Direct the motor accordingly in the corresponding sector.

DIVISION OF OBJECT IN GRAYSCALE TO OBTAIN IT's CENTRE
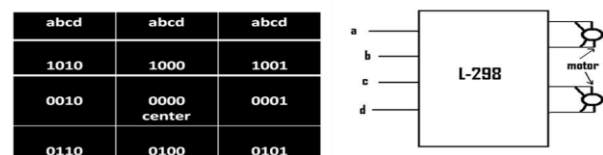
ACQUISITION OF IMAGE TO BE SETUP

Fig 2. Acquisition Of Image To Be Setup

Image acquisition setup:
It consists of a web camera with suitable interface for connecting it to PC.
Processor:
It consists of personal computer.
Image analysis:
It is a tool used to analyze the content in the image captured and derive conclusions.

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Machine control:
After making the conclusion, mechanical action is to be taken.

Hardware Used:

1. Personal Computer
2. Web-cam
3. Parallel Port
4. L-298

Software Used: MATLAB 7.0

Applications:

1. Missile/enemy detection-tracking

2. Random object tracking

3. Human/mechanical robots

4. Tracking (space flight).

5. Tracking satellites from a tracking station.

FUTURE SCOPE AND CONCLUSION

Further algorithms can related to traffic contol and parking cameras can be added through Matlab and synchronized with robotics to cover a wide range of traffic applications. System can be designed using Wireless technology such as sonar, radar infrared to increase its range.

CONCLUSION

Once the camera begins tracking the object, the process becomes automated for as long as the user wishes. The system is capable of ignoring any random images. Real time tracking of the object is possible at quick speeds

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