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Missile Detection and Auto Collision System

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Abstract— This system is designed to detect the target (missile) moving in multiple directions. The target destroying system moves automatically in the direction of missile and fires it upon fixing the target.This system consists of an intelligent sonar based object tracking system that continuously monitors the target. Upon detecting the target it sends the target's location to a Central Control System. The Central Control System takes the action of moving the firing mechanism in the direction of target (missile). Upon fixing the direction, it sends the control command to firing system for attacking the target. In this project we are making use of ultrasonic radar system and a DC geared motor driven firing unit interfaced with a Microcontroller based control unit. We prefer ultrasonic sensor to IR sensor, because the Ultrasonic sensors covers larger sensing distance and it can detect the target in all the lighting conditions (day or night). The programming of Microcontroller is done using Embedded 'C'.

Keywords— Embedded 'C', DC geared motor, Singular Value Decomposition(SVD),2D Barcode,Steganography

I. INTRODUCTION

We come across situations where we need to keep a watch over prohibited areas to avoid trespassing. Now keeping human labor for this purpose is not so effective and also not reliable for keeping a watch an area 24x7. The purpose of this project is to design and construct automatic missile detection and destroying system. This system is designed to detect the target (missile) moving in multiple directions. The target destroying system moves automatically in the direction of missile and fires it upon fixing the target. This system consists of an intelligent sonar based object tracking system that continuously monitors the target. Upon detecting the target it sends the target's location to a Central Control System. The Central Control System takes the action of moving the firing mechanism in the direction of target (missile). Upon fixing the direction, it sends the control command to firing system for attacking the target. In this project we are making use of ultrasonic radar system and a DC geared motor driven firing unit interfaced with a Microcontroller based control unit. We prefer ultrasonic sensor to IR sensor, because the Ultrasonic sensors covers larger sensing distance and it can detect the target in all the lighting conditions (day or night). The programming of Microcontroller is done using Embedded 'C'.

II. SIGNIFICANCE OF WORK

An embedded system is a special-purpose computer system designed to perform one or a few dedicated functions, sometimes with real-time computing constraints. It is usually embedded as part of a complete device including hardware and mechanical parts. In contrast, a general- purpose computer, such as a personal computer, can do many different tasks depending on programming. Embedded systems have become very important today as they control many of the common devices we use. Since the embedded system is dedicated to specific tasks, design engineers can optimize it, reducing the size and cost of the product, or increasing the reliability and performance. Some embedded systems are mass-produced, benefiting from economies of scale. Physically, embedded systems range from portable devices such as digital watches and MP3 players, to large stationary installations like traffic lights, factory controllers, or the systems controlling nuclear power plants. Complexity varies from low, with a single microcontroller chip, to very high with multiple units, peripherals and networks mounted inside a large chassis or enclosure. In general, "embedded system" is not an exactly defined term, as many systems have some element of programmability. For example, Handheld computers share some elements with embedded systems — such as the

operating systems and microprocessors which power them — but are not truly embedded systems, because they allow different applications to be loaded and peripherals to be connected.

An embedded system is some combination of computer hardware and software, either fixed in capability or programmable, that is specifically designed for a particular kind of application device. Industrial machines, automobiles, medical equipment, cameras, household appliances, airplanes, vending machines, and toys (as well as the more obvious cellular phone and PDA) are among the myriad possible hosts of an embedded system. Embedded systems that are programmable are provided with a programming interface, and embedded systems programming is a specialized occupation. Certain operating systems or language platforms are tailored for the embedded market, such as Embedded Java and Windows XP Embedded. However, some low-end consumer products use very inexpensive microprocessors and limited storage, with the application and operating system both part of a single program.

III. METHODOLOGY

Initially as the system power ups, the servo motor and ultrasonic sensor attached to it, sets its position to 0 degrees. After that the servo motor starts to rotate and ultrasonic senor starts to emit sound waves. If the transceiver receives any reflected signal by hitting an object, it inputs the arduino which then estimates the distance of the object by analyzing the time taken to reflect and receive at transceivers end. Arduino gives the co-ordinates of the incoming object to DC motor which aims at the object and fires the anti-missile. When no missile is detected the system turns on green LED meaning its safe and LCD displays "NO MISSILE DETECTED". As the missile is detected the red LED turns on and also LCD also displays "MISSILE DETECTED".

RESULTS

Fig 1: ultrasonic sensor

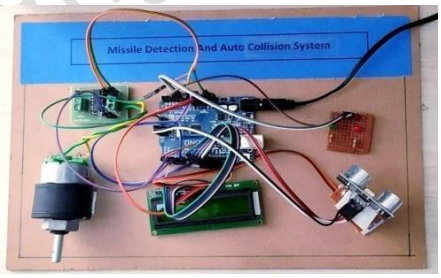

Fig 2: Circuit design board

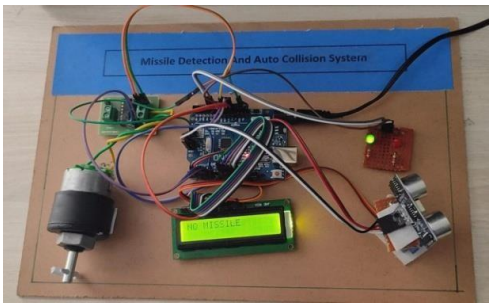

Fig 3:Output

IV . FUTURE SCOPE

This type of robots has very high future scope because it is very useful for agriculture by reducing the workload.It reduces the time-consuming process of spraying pesticides and water, and can work very effectively It can work in any weather condition by reducing workload and can work in any season by configuring through mobile It helps in reducing health conditions of farmers which generally happen due to inhalation of chemicals from pesticides and other animals too.

V. CONCLUSION

This system may improve the way of agriculture is done by the farmer to save money, time and energy. This system may monitor and report real time situation of the robot in an accurate manner to the farmer's mobile, thus helping the farmer to be aware of the tasks performed. By implementing this project in the field of agriculture we can help the farmers in the various stage of agriculture i.e., during the Seeding and fertilizing. This project is very useful for the farmers who are intended to do agriculture activity but facing the labor problem.

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