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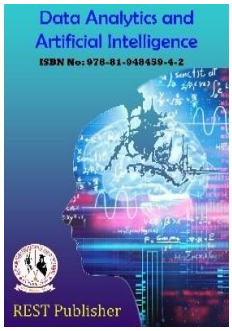

Robotor an autonomous vehicle for target Detection and shooting

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Abstract. *Humans have evolved to better survive and have evolved the Ultrasonic invention In today's age, a large number of robots are placed in many areas replacing manpower in severe or dangerous workplaces. Moreover, the most important thing is to take care of this technology for developing robots progresses. This paper proposes an autonomous moving system which automatically finds its target from a scene, lock it and approach towards its target and hits through a shooting mechanism. The main objective is to provide reliable, cost effective and accurate technique to destroy an unusual threat in the environment Ultrasonic using Sensors. The robotic industry is one of such invention that will evolve parallel to us because somewhere we view them as our descendants. Every day we see new products in the market with new innovation, better efficiency and accuracy. The trend of robotics has affected every phase of our life. The information that the robot process or generate can be sent in a wired fashion or though wireless communication. To process the data a processing unit is required, generally a microprocessor perform this task.*

Key Words: *Arduino UNO Board, ATmega 328 Microcontroller Pin Description, Laser Module, Ultrasonic Sensor, Servo Motor, DC Motor, PIR Sensor, Buzzer, Batter*

1. INTRODUCTION

The robotic industry is one of such invention that will evolve parallel to us because somewhere we view them as our descendants. Every day we see new products in the market with new innovation, better efficiency and accuracy. The trend of robotics has affected every phase of our life. The information that the robot process or generate can be sent in a wired fashion or though wireless communication. To process the data a processing unit is required, generally a microprocessor perform this task. Then image processing comes into the picture. Then they can be sent to the microprocessor for processing and some information can be extracted out of them. The eye for a Robot is its sensors to understand the circumstances. The design team, consisting of seniors majoring in electrical or computer engineering, has been assigned the task to design and create an autonomous robot that is capable of following a predefined target. This technology could be utilized and implemented in a number of different areas, such as military applications and child monitoring. The robot must have both autonomous and manual modes of operation, and be wirelessly connected to a base state board. The first instance of modern robotics appeared in 1948 when George Devol and Joe Engle berger created a mechanical arm. The two later created the first robotics company in 1956. In 1979, the Stanford Cart robot successfully crossed a chair filled room with no human assistance

2. BLOCK DIAGRAM

A block diagram is a diagram of a system in which the principal parts or functions are represented by blocks connected by lines that show the relationships of the blocks. Block diagrams are typically used for higher level, less detailed descriptions that are intended to clarify overall concepts without concern for the details of implementation. The block diagram for our developing project ―Arduino based Shooting robot. This consists of Arduino UNO, Laser Module, Ultrasonic Sensors, Servo Motor, DC motor, PIR sensor, Motor driver, Buzzer, Battery, Resistors, Capacitors. Each passive Ultrasonic sensor senses and generates the signal at a different port of the microcontroller and it then depends on the microcontroller to generate a unique corresponding code related to the passive ultrasonic sensor detection.

FIGURE 1.block diagram

3. Arduino UNO microcontroller

"Uno" means one in Italian and is named to mark the upcoming release of Arduino 1.0. The Arduino UNO and version 1.0 will be the reference versions of Arduino, moving forward. The Uno is the latest in a series of USB Arduino boards, and the reference model for the Arduino platform. The Arduino Uno is a microcontroller board based on ATmega328.The controller used in Arduino no is ATmega328. Arduino has 20 digital input/output pins which consist of 6 PWM outputs and 6 used as analog inputs. It also consist of a 16 MHz resonator, a USB connection, a power jack, an in-circuit system programming (ICSP) header, and a reset button. It contains simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. Arduino is an open-source, prototyping platform and its simplicity makes it ideal for hobbyists to use as well as professionals. The Arduino open-sourced IDE drivers can be downloaded for free in all Windows XP. Figure 3.6 represent the Arduino UNO board which was used in our project

FIGURE 2.Arduino UNO Board

4. PIN DESCRIPTION

Port A (PA7-PA0) It is used for analog inputs of A / D. But if A/D converter is not enabled it also serves as a self in 8-bit bi-directional port for input and output. Port pins can provide internal pull-up resistors (selected for each bit). Port B (PB7-PB0) Port B is used as input/output 8-bit bi-directional port having internal pull- up resistors. The output buffers of Port B are of symmetrical drive characteristics having high sink and source capability.

When acting as input pins, Port B pins; if pulled externally low; will source current if the pull-up resistors are activated Port C (PC7-PC0) Port C's special feature is JTAG interface. If the JTAG interface is enabled, the pull-up resistors on pins PC5 (TDI), PC3 (TMS) and PC2 (TCK) will be activated even if a reset occurs. Along with this Port C can also be used as input/output 8-bit bi-directional port having internal pull-up resistors. Port D (PD7-PD0) Port D serves the functions of various special features of the ATmega16 like interrupts input, timer/counter output and UART. In addition to this Port D is used as input/output 8-bit bi-directional port having internal pull-up resistors.

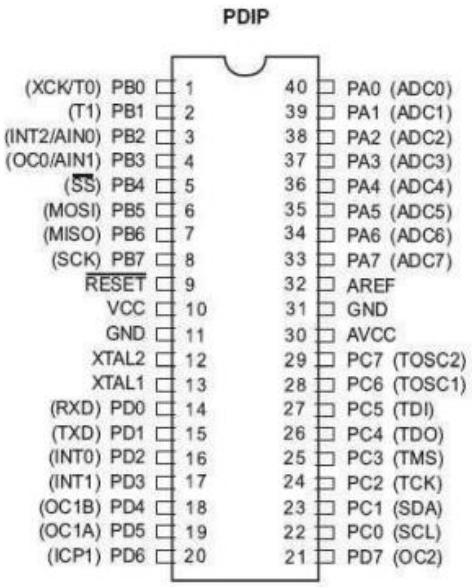

FIGURE 3.ATmega328 Microcontroller Pin Descriptions

5. COMPOSITION OF THE GSM NETWORK

The GSM network has four separate parts that work together to function as a whole: the mobile device itself, the base station subsystem (BSS), the network switching subsystem (NSS) and the operation and support subsystem (OSS).The mobile device connects to the network via hardware. The subscriber identity module (SIM) card provides the network with identifying information about the mobile user.

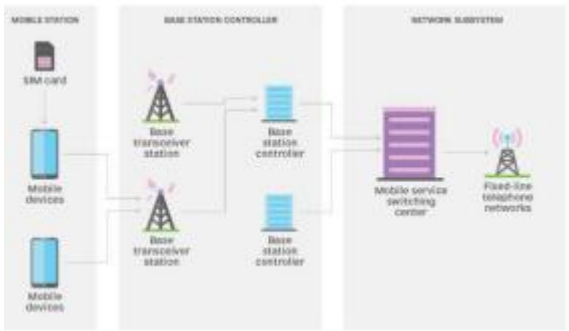

FIGURE 4.GSM Network

6. STEERING SENSOR

The steering angle sensor (SAS) is a critical part of the ESC system that measures the steering wheel position angle and rate of turn. A scan tool can be used to obtain this data in degrees. The SAS is located in a sensor cluster in the steering column. The cluster always has more than one steering position sensor for redundancy and to confirm data. The ESC module must receive two signals to confirm the steering wheel position.

FIGURE 5. Steering Sensor

7. CONCLUSION

This paper has presented an autonomous moving robot has been implemented which is capable to detect a certain object, approaches towards its target and shoot it down. The result shows that the accuracy to find the target is 95 % which demonstrate its accuracy and efficiency. The main constraint of this approach is that it can shoot only static object but no one is always static in nature. So our future work is to make an autonomous system which could predict the direction of moving targets using object tracking.

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