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AUTOMATIC MISSILE DETECTION AND DESTROY SYSTEM BASED ON AT 89C51 MICROCONTROLLER

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ABSTRACT

The purpose of this project is to style and construct automatic missile detection and destroying system. this techniqueis intended to find the target (missile) occupancy multiple directions. The target destroying system movesmechanically within the direction of missile and fires it upon fixing the target. this technique consists of AN intelligentmeasuring instrument primarily based object pursuit system that endlessly monitors the target. Upon police investigation the target it sends the target's location to a Central system. The Central system takes the action of moving the action mechanism within the direction of target (missile). Upon fixing the direction, it sends themanagement command to firing system for assaultive the target. during this project we tend to ar creating use ofinaudible radiolocation system and a DC geared motor driven firing unit interfaced with a Microcontroller primarily based management unit. we tend to like inaudible sensing element to IR sensing element, as a result of theinaudible sensors covers larger sensing distance and it will find the target all told the lighting conditions (day or night). The programming of Microcontroller is finished mistreatment Embedded 'C'

Index Terms: Microcontroller, Ultrasonic transducer. Zigbee. Stepper motor. DC gear motor.

1. INTRODUCTION:

The planned system uses associate degree inaudible module interfaced to 8051family microcontroller to find missile object. associate degree inaudible electrical device comprising of a transmitter and receiver area unit used on same module. The inaudible electrical device produces sound waves. The transmitted sound waves area unit mirrored back from the thing and received by the electrical device once more. the entire time taken from causation the waves to receiving it's calculated by taking

into thought the rate of sound. Then the space is measured and showed on a liquiddisplay interfaced to the microcontroller. once the microcontroller receives the signal from inaudible receiver, it activates the door gun by triggering the gate of MOSFET through a semiconductor or relay [1][2]. The device is fitted on antenna and is revolved and controlled by stepper motor through 360 degrees. If there's any target inside the detection vary, the applying can flip the launcher to the closest detected target and fires. The antenna is revolved and controlled by stepper motor by one axis and conjointly with another axis it rotates up and down directions towards missile object simultaneously[1]. The tank vehicle is fitted with another microcontroller for movements of the vehicle's managementactions send and receive by the key panel through wireless zigbee communication. The programs for 8051 family microcontroller area unit written by the embedded C programming exploitation kiel computer code.

2.ARCHITECTURE OF PROPOSED SYSTEM

The design of projected system is consists of 8-bit microcontrollers AT89C51and P89V51RD2, Zigbee wireless communication module, inaudible electrical device module, Stepper motor drive module, meshed DC motor drive module, liquid crystal display interface module and different necessary accessories. These area unit explained in subsections.

2.1 Microcontrollers

The missile detection and automatic destroyer system using 8-bit microcontrollers are shown in Figure1 Fig. 2. The AT89C51 is a low-power, high-performance CMOS 8- bit microcomputer with 4K bytes of Flash programmable and erasable read only memory (PEROM).

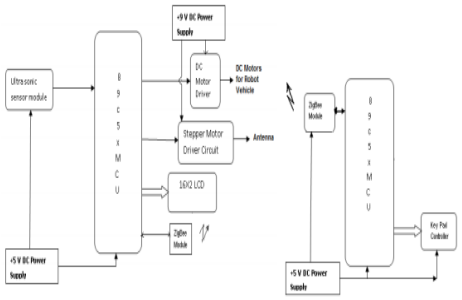

Fig. 1: Block Diagram of Microcontroller based Missile Object Detector.

Fig. 2: Block Diagram of Microcontroller based Zigbee Wireless Key pad controller.

2.2 Ultrasonic Transducer

Ultrasonic sensors additionally called transceivers work on a principle the same as measuring system or measuring device that evaluates attributes of a target by deciphering the echoes from radio or sound waves severally.supersonic sensing elements generate high frequency sound waves and judge the echo that is received back by the sensor is shown in Fig. 3. Use for motion or distance sensing with Frequency: 40kHz ±1.0kHz, Al case, Capacitance: 2000Pf ±20% . The transmitter information measure is five.0kHz/100Db and **pressure** level 112Db/40
±1.0kHz.

Fig. 3: Ultrasonic Transducer Module.

An ultrasonic proximity sensor uses a piezoelectric transducer to send and detect sound waves. Transducer generate high frequency sound waves and evaluate the echo by the detector which is received back after reflecting off the target.

2.3 ZigBee Wireless Communication

ZigBee is the set of specs built around the IEEE 802.15.4 wireless protocol. The name "ZigBee" is derived from the erratic zigging patterns many bees make between flowers when collecting pollen. This is evocative of the invisible webs of connections existing in a fully wireless environment. The standard itself is regulated by a group known as the ZigBee Alliance, with over 150 members worldwide [4].

ZigBee devices are actively limited to a through-rate of 250Kbps, compared to Bluetooth's much larger pipeline of 1Mbps, operating on the 2.4 GHz ISM band, which is available throughout most of the world.

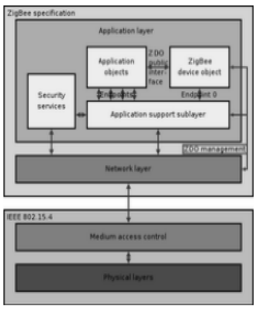

Fig. 4: Zigbee protocol stack.

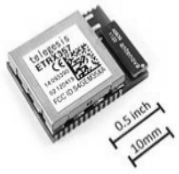

Fig. 5: Zigbee hardware module.

ZigBee has been developed to meet the growing demand for capable wireless networking between numerous low-power devices. In industry ZigBee is being used for next generation automated manufacturing, with small transmitters in every device on the floor, allowing for communication between devices to a central computer. This new level of communication permits finely-tuned remote monitoring and manipulation.

3.KEIL SOFTWARE

The keil software system provides with software system development tools for the 8051 family of microcontrollers. Keil provides following tools for 8051 development like C51 Optimizing C Cross Compiler, A51 Macro programme, 8051 Utilities (linker, object file convertor, library manager), Source-Level Debugger/Simulator, µVision for Windows Integrated Development surroundings [5]

3.1 Keil C Cross Compiler

Keil may be a German based mostly package development company. It provides many development tools like, Integrated Development surroundings (IDE), Project Manager, Simulator, Debugger, C Cross Compiler, Cross program, Locator/Linker..

4. EXPERIMENTAL SETUP TESTING

The experimental setup is tested is shown in Fig. 6. and verified by the operations shown in table one. The experimental setup primarily works on autonomous standalone system with sequence of operations as per formula and programs executes through microcontrollers.

5. CONCLUSION

the unhearable transceiver (Transmitter & Receiver) detects missile object and displays distance on liquid crystal display through Microcontroller primarily based Zigbee wireless communication commonplace. The sensing elementis fitted on antenna and

is revolved and controlled by stepper motor through 360 degrees and conjointly with up and down directions. If there's any target at intervals the detection vary, the applying can flip the launcher to the closestdetected target and fires. The tank vehicle is fitted with another microcontroller with movements of the vehicle'smanagement actions send and receive by the zigbee communication key panel. The launching system may be changedto aim at missile object in 3 axis rotation by following the unhearable transceiver knowledge.

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