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INTRUSION DETECTION AND AUTO GUN FIRING SYSTEM IN BORDER SECURITY

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ABSTRACT

Designing a computer-controlled intrusion-detector and automatic firing unit, which may be used for the surveillance of borders, either of a country, or of areas requiring high security, especially in regions of extreme climatic conditions, where it is difficult to deploy personnel. This system not only detects intrusion but also provides a video-coverage of the suspicious area, for remote vigilance. It is also provided with automatic firing mechanisms which can be used to automatically locate and fire at the target. Thus, several kilometers of the borders, which would have otherwise required several hundred personnel, can be effortlessly monitored with this system, with only a few personnel. Since, the actual firing occurs only after an authoritative personnel has doubly confirmed the presence of an intruder, chances of firing at innocent people are completely ruled out. As thermal cameras are used for imaging, this system is immune to changes in ambient conditions, and therefore, is equally suited for operationduringthenight.

INTRODUCTION

In this project we are Designing a computer-controlled intrusion-detector and automatic firing unit, which may be used for the surveillance of borders, either of a country, or of areas requiring high security, especially in regions of extreme climatic conditions, where it is difficult to deploy personnel. This system not only detects intrusion but also provides a video-coverage of the suspicious area, for remote vigilance. It is also provided with automatic firing mechanisms which can be used to automatically locate and fire at the target. Thus, several kilometers of the borders, which would have otherwise required several hundred personnel, can be effortlessly monitored with this system, with only a few personnel. Since, the actual firing occurs only after an authoritative personnel has doubly confirmed the presence of an intruder, chances of firing at innocent people are completely ruled out. As thermal cameras are used for imaging, this system is immune to changes in ambient conditions,

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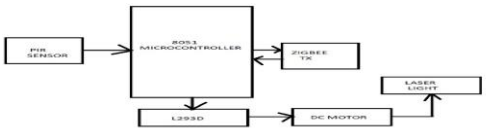
and therefore, is equally suited for operation during the night.



HARDWARE COMPONENTS

The power supply circuits built using filters, rectifiers, and then voltage regulators. Starting with an ac voltage, a steady dc voltage is obtained by rectifying the ac voltage, then filtering to a dc level, and finally, regulating to obtain a desired fixed dc voltage. The regulation is usually obtained from an IC voltage regulator unit, which takes a dc voltage and provides a somewhat lower dc voltage, which remains the same even if the input dc voltage varies, or the output load connected to the dc voltage changes. The block diagram of power supply.

The potential transformer will step down the power supply voltage (0-230V) to (0-6V) level. Then the secondary of the potential transformer will be connected to the precision rectifier, which is constructed with the help of op–amp. The advantages of using precision rectifier are it will give peak voltage output as DC, rest of the circuits will give only RMS output.

Voltage regulators comprise a class of widely used ICs. Regulator IC units contain the circuitry for reference source, comparator amplifier, control device, and overload protection all in a single IC. Although the internal construction of the IC is somewhat different from that described for discrete voltage regulator circuits, the external operation is much the same. IC units provide regulation of either a fixed positive voltage, a fixed negative voltage, or an adjustably set voltage.

The series 78 regulators provide fixed regulated voltages from 5 to 24 V. Unregulated input voltage Vin is filtered by capacitor C1 and connected to the IC's IN terminal. The IC's OUT terminal provides a regulated + 12V which is filtered by capacitor C2. The third IC terminal is connected to ground (GND).

The Power Section shown in fig 5.4 consists of a centre tapped step-down transformer, which is used to step down the 230V AC into 12V. This 12V is given to bridge rectifier. The output from the diodes is a full-wave rectifier output. Any unwanted ac ripples are filtered out using a filter. Now, this is fed to the 7805 voltage regulator that gives an output voltage of +5V.

Keil is a German based Software development company. It provides several development tools like

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- IDE (Integrated Development environment)
- Project Manager
- Simulator
- Debugger
- C Cross Compiler , Cross Assembler, Locator/Linker

Keil Software provides you with software development tools for the 8052 family of microcontrollers. With these tools, you can generate embedded applications for the multitude of 8052 derivatives. Keil provides following tools for 8052 development

- C51 Optimizing C Cross Compiler,
- A51 Macro Assembler,
- 8052 Utilities (linker, object file converter, library manager), • Source-Level Debugger/Simulator,
- µVision for Windows Integrated Development Environment.

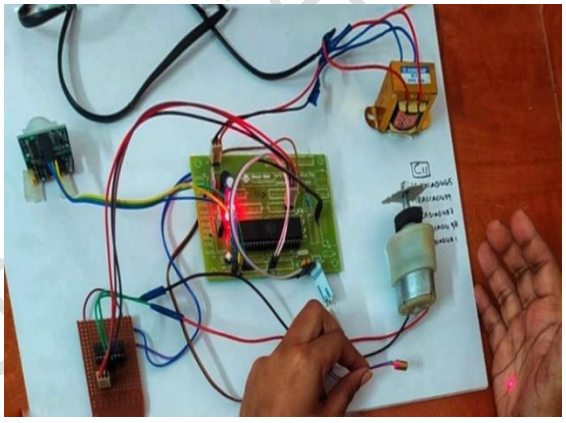
The keil 8052 tool kit includes three main tools, assembler, compiler and linker.

An assembler is used to assemble your 8052 assembly program. A compiler is used to compile your C source code into an object file. A linker is used to create an absolute object module suitable for your in-circuit emulator.

8052 project development cycle: - these are the steps to develop 8052 project using keil

- Create source files in C or assembly.
- Compile or assemble source files.
- Correct errors in source files.
- Link object files from compiler and assembler.
- Test linked application.
- Now let us start how to work with keil.

OUTPUT



CONCLUSION AND FUTURE SCOPE

Thus the “Intrusion Detection and Auto Gun Firing System in Border Security” has been designed and tested successfully. It has been developed by integrated features of all the hardware components used. Presence of every module has been reasoned out and placed carefully, thus contributing to the best working of the unit. The system has been tested to function automatically. The object is being tracked by PIR sensor.Whenever the microcontroller gives the information regarding intruder, then automatically the zigbee module at the

receiver will receive the information and displays on PC. Then officials can watch the live video by using IP webcam app which is installed in the smart phone. Since, the actual firing occurs only after authoritative personnel have confirmed the presence of an intruder. Thus, the functionality of the entire system has been tested thoroughly and it is said to function successfully.

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