

HIGHER TECHNICAL INSTITUTE

ELECTRICAL ENGINEERING DEPARTMENT

DIPLOMA PROJECT

**MICROPROCESSOR BASED CONTROLLED
SECURITY SYSTEM**

E.1282

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HIGHER TECHNICAL INSTITUTE	PROJECT NO. 3329
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CHAPTER 1

The Idea for the Project

PROBLEM

This project idea was created when a good friend that who studies in England became aware that his room-mates used to enter his room while he was in classes and were messing around with his private stuff and his university notes.

Then he asked me to help him discover who from the five people that live with him in a shared house did not respect the privacy and the request of the others in order to stop this situation.

SOLUTION

After some thinking, the construction of a security alarm came to our minds. A security alarm that would trace the presence of a person in the room and since I never knew much for ultrasounds I thought it will be a good healthy challenge to try and obtain a circuit and understand its operation and construction. There are many other type of alarm sensors from piezoelectric to infrared.

In security alarms the most usually type of detector used is the infrared but the ultrasonic sensor was the one I chose for my work after finding some relevant information over the Internet.

The whole project can be used in a million ways to do virtually anything concerning security and not only for this situation. In any kind of intrusion in small or big houses, it can detect and intimidate the intruder or it can cause him severe health damage. It can also be used not only in a house but due to its small size it can be used in a car, a shop or a specific drawer or cupboard.

The system can be "cut" individually to many other smaller independent detectors acting each on its own.

After the method of detection was found a way to capture or photograph the intruder was needed.

At that point Mr.Hajioannou had the idea to use a microcontroller in the project, a thing that I though was not needed but eventually was vary helpful in the completion of the security alarm and also gave me a good introduction in the world of microprocessors and microcontrollers, which is essential for an electrical engineer.

The microcontroller would be responsible for the operation of a camera installed on top of a stepper motor interfaced with the micro controller in order to capture the person, who was responsible for the intrusion.

OBJECTIVES

To construct a circuit that will detect the presence of an intruder in a room and with the aid of a camera capture the intruder in video.

Extra Objectives: To make the system described above a fully operated security system

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CD4093 IC
BC547 NPN Transistor
LM471 Op. Amplifier
BFY51 NPN transistor
NE555 IC
Regulator Theory
Intel 80C31 8-Bit microcontroller