

**FACULTY OF ELECTRICAL ENGINEERING
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FINAL REPORT

PROJECT TITLE

AUTOMATIC DOORBELL

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ABSTRACT

The automatic doorbell circuit is designed to detect a person from entering through door. Both ultrasonic transmitter and receiver is used as a sensor which will sense any movement entering the door. Distance has been set for both component to detect movement. With this two component it would likely saves man power, saves electricity and enhances security. Buzzer is used as an output to this circuit. Proteus 7 is used to run the simulation of the circuit.

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CHAPTER 1: INTRODUCTION

1.1 BACKGROUND OF STUDY

The necessity for some means by which someone on the outside of a door could notify someone on the inside of his presence has been recognized for centuries. The earliest solution to this problem consisted of the simple expedient of knocking on the door with one's fist. As the human race grew in wisdom and technical sophistication, new and subtler methods were invented. The first of these was the mechanical door knocker, which saved man untold pain from bruised knuckles. Then with the advent of electronics came the electrical door bell, the evolution of which over the past two decades has seen the invention of a number of methods capable of detecting the approach of a person to a door at a distance and triggering the production of an appropriate sound on the inside of the door. Unfortunately, all such methods devised so far suffer from disadvantages which have prevented their widespread application to residential doors.

These methods can be divided into three categories on the basis of the principle used to detect the approaching person. The first category involves the use of a mechanical switch which is activated when the person steps on it. The second involves the use of a photoelectric sensor and a light source arranged so that the person casts a shadow on the sensor as he approaches the door. The third involves some type of capacitance proximity sensor which detects the change in capacitive coupling between a metal sensor plate and ground, or between two plates mounted on or near the door, that results when a person approaches them.

None of the three categories has achieved wide acceptance in residential applications, principally because they are all difficult to install, limiting their usefulness primarily to those instances when they can be built in during the construction of the building.

The mechanical switch method requires that a mat containing many such switches be placed in front of the door in such a way that anyone approaching the door must step on it. Not only are such mats highly anaesthetic, but it must be connected to the sound producing unit inside the house, requiring that a hole be drilled through a wall. This sort of installation is beyond what most homeowners have the time or skill to attempt, and is therefore usually done by professionals, greatly increasing total cost.

The photoelectric method requires that a light source and photo detector be mounted on either side of the path leading to the door. Here again, installation is usually done by professionals, and unless it is possible to hide the units in shrubbery, the light source and detector can be even more anaesthetic than a mat.