Contactless Call Bell

Project Report

Submitted for the partial fulfillment of the degree of

Bachelor of Technology

In

Internet of Things (IOT)

Submitted By

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UNDER THE SUPERVISION AND GUIDANCE OF

Dr. Priyanka Garg
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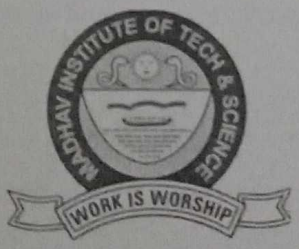

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June 2024

DECLARATION BY THE CANDIDATE

I hereby declare that the work entitled **"Contactless Call Bell"** is my work, conducted under the supervision of **Dr. Priyanka Garg, Assistant Professor ,** during the session Jan-May 2024. The report submitted by me is a record of bonafide work carried out by me.

I further declare that the work reported in this report has not been submitted and will not be submitted, either in part or in full, for the award of any other degree or diploma in this institute or any other institute or university.

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Date: 19-11-2024
Place: Gwalior

This is to certify that the above statement made by the candidates is correct to the best of my knowledge and belief.

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ABSTRACT

The "Contactless Call Bell" is an innovative Internet of Things solution conceptualized to deliver a hygienic and efficient replacement for regular call bells. The apparatus employs an ultrasonic sensor to notice impediments, such as a hand, inside a 1 centimeter radius. Upon detection, the sensor transmits a pulse to the NodeMCU ESP8266 microcontroller, triggering a buzzer as well as sending an email notification to the homeowner. This contactless functionality confirms that the mechanism works devoid of physical contact, significantly upgrading cleanliness benchmarks and end-user benefit.

The system draws power from an Arduino Uno, which offers the necessary 5-volt supply to the ultrasonic sensor and buzzer. By exclusively concentrating on detecting barriers rather than gesture analysis, the undertaking spotlights simplicity and accuracy in its application. The contactless design removes the need for direct physical interaction, prioritizing public health. Its focused range and fast response promote a streamlined experience for users.

ACKNOWLEDGEMENT

The full semester Project has proved to be pivotal to my career. I am thankful to my institute, **Madhav Institute of Technology & Science** to allow me to continue my disciplinary/interdisciplinary Project as a curriculum requirement, under the provisions of the Flexible Curriculum Scheme approved by the Academic Council of the institute. I extend my gratitude to the Director of the institute, **Dr. R. K. Pandit** and Dean Academics, **Dr. Manjaree Pandit** for this.

I would sincerely like to thank my department, **Centre for Internet of Things**, for allowing me to explore this project. I humbly thank **Dr. Praveen Bansal**, Assistant Professor and Coordinator, Centre for Internet of Things, for his continued support during the course of this engagement, which eased the process and formalities involved. I am sincerely thankful to my faculty mentors. I am grateful to the guidance of **Dr. Priyanka Garg**, Assistant Professor, and Centre for Internet of Things, for his continued support and guidance throughout the project. I am also very thankful to the faculty and staff of the department.

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CONTENT

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ACRONYMS

Acronym	Full Form
IoT	Internet of Things
NodeMCU	Node Microcontroller Unit
ESP8266	Wi-Fi Module Integrated Microcontroller
HC-SR04	Ultrasonic Distance Sensor Module
GPIO	General-Purpose Input/Output
Wi-Fi	Wireless Fidelity
IDE	Integrated Development Environment
VCC	Voltage Common Collector
GND	Ground

NOMENCLATURE

SYMBOL/TERM	DESCRIPTION	UNIT
HC-SR04	ultrasonic sensor for obstacle detection	-
NodeMCU ESP8266	Microcontroller with Wi-Fi capabilities	-
TRIG	Trigger pin of the ultrasonic sensor	-
ECHO	Echo pin of the ultrasonic sensor	-
Buzzer	Audio output device triggered by signal	-
Wi-Fi	Wireless communication standard	-
Distance	Measured distance by the ultrasonic sensor	Centimeters (cm)
Duration	Time taken for ultrasonic waves to return	Microseconds (μs)
Voltage (V)	Electric potential difference	Volts (V)
Current (I)	Flow of electric charge	Amperes (A)

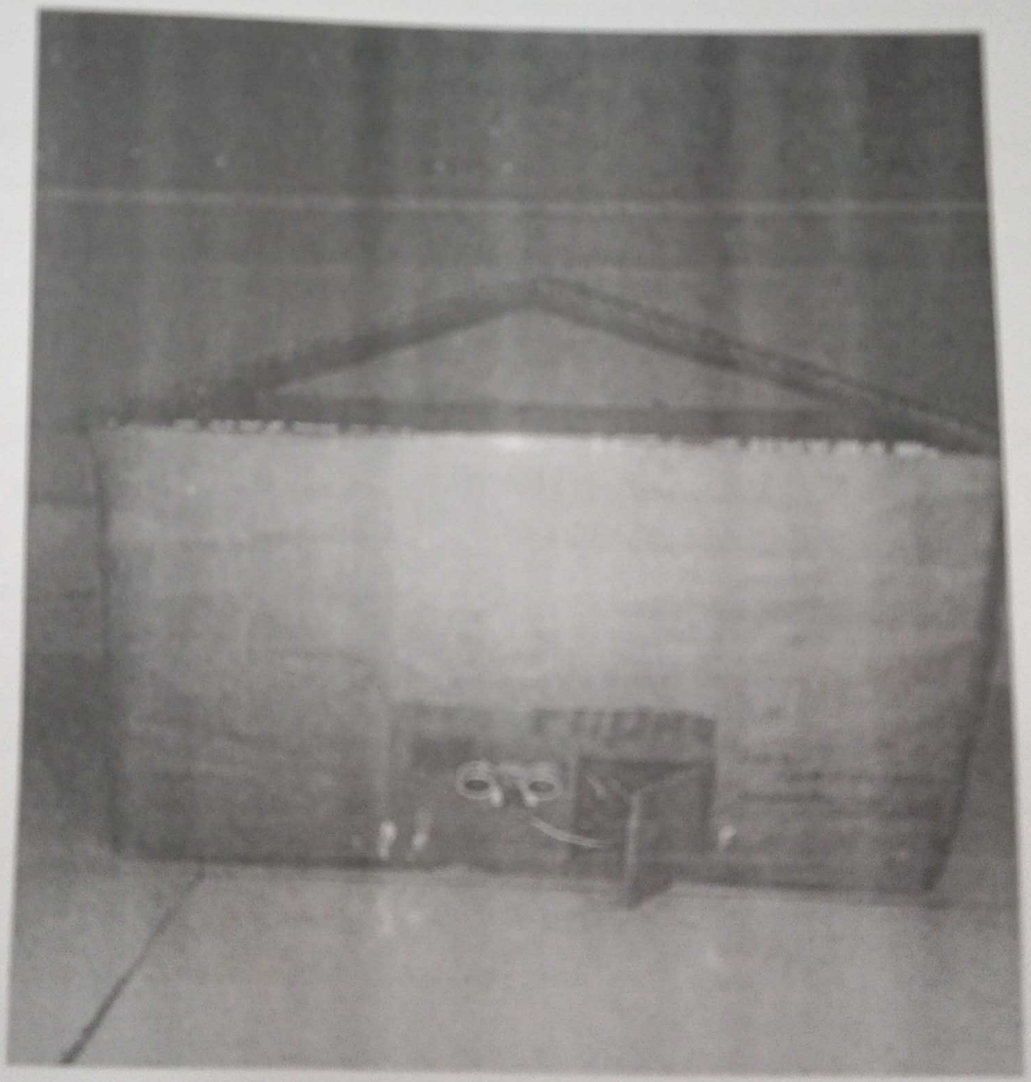
```
target=distance/2;
Serial.println(target);
delay(1000);

if(target<=1){
digitalWrite(led,HIGH);

http.begin(client,url);
int httpCode = http.GET();

if(httpCode>0){
 Serial.printf("HTTP status code: %\n",httpCode);
 if(httpCode == 200){
 String payload = http.getString();
 Serial.println(payload);
 }
 else{
  Serial.println("Failed to connect");
 }
 http.end();
}
else{
digitalWrite(led,LOW);
}
}
}
```

Code Snippet for PHP mailer:

```
<?php
use PHPMailer\PHPMailer\PHPMailer;
use PHPMailer\PHPMailer\Exception;

require 'vendor/autoload.php';

$mail = new PHPMailer(true);

try{
        $mail->SMTPDebug = 2;
        $mail->isSMTP();
        $mail->Host ='smtp.gmail.com';
```

Results:

The implementation was successful, achieving a fully functional connection call bell system. The system reliably detected obstacles, activated the buzzer, and sent email notifications within 1-7 seconds(approx.) of detection.



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