



Green University of Bangladesh

*Department of Computer Science and Engineering (CSE)
Semester: (Fall, Year: 2022), B.Sc. in CSE (Eve)*

Project Proposal: Motion-Activated Doorbell System

*Course Title: Digital Logic Design Lab
Course Code: CSE 204
Section: 222 EA*

Students Details

Name	ID
Samayun Miah Chowdhury	222015031

*Submission Date: 10-June-2023
Course Teacher's Name: Mahmuda Rahman
Designation: Lecturer, Lab Courses*

[For teachers use only: **Don't write anything inside this box**]

<u>Lab Project Status</u>	
Marks:	Signature:
Comments:	Date:

Contents

1	Introduction	2
1.1	Overview	2
1.2	Motivation	2
1.3	Design Goals/Objectives	2
1.4	System Functionality	3
2	Implementation Plan	4
2.1	Introduction	4
2.2	Instruments	4
2.3	Project Details	4
3	Outcomes:	6
4	Conclusion	7

Chapter 1

Introduction

1.1 Overview

The aim of this project is to design and implement a motion-activated doorbell system, which detects the presence of a person near the door and triggers a doorbell sound. The system will utilize digital logic components and sensors to detect motion and provide a convenient and efficient solution for visitors to announce their arrival.

1.2 Motivation

The motion-activated doorbell system project aims to provide convenience and security by automatically detecting visitors near the door and triggering a doorbell sound. It offers customizable settings, energy efficiency, and an opportunity to gain hands-on experience in digital electronics.

[?].

1.3 Design Goals/Objectives

- a. Design a motion detection circuit to sense the presence of a person near the door.
- b. Develop a digital logic circuit to trigger a doorbell sound upon detecting motion.
- c. Implement a user-friendly interface for configuring and adjusting system parameters.
- d. Create a robust and reliable system that operates in various environmental conditions.
- e. Optimize the system for low power consumption.

1.4 System Functionality

- a. Motion Detection: The PIR sensor will detect motion within its range, generating a signal when a person is detected near the door.
- b. Signal Processing: The MCU will receive the motion signal and process it to determine the validity and trigger a doorbell sound.
- c. Sound Generation: Upon detecting valid motion, the digital sound generation circuit will produce a doorbell sound through a speaker or buzzer.
- d. User Configuration: Users will be able to adjust settings such as sound volume, sensitivity, and mode (e.g., silent mode).
- e. Power Management: The system will optimize power consumption through intelligent power management techniques.

Chapter 2

Implementation Plan

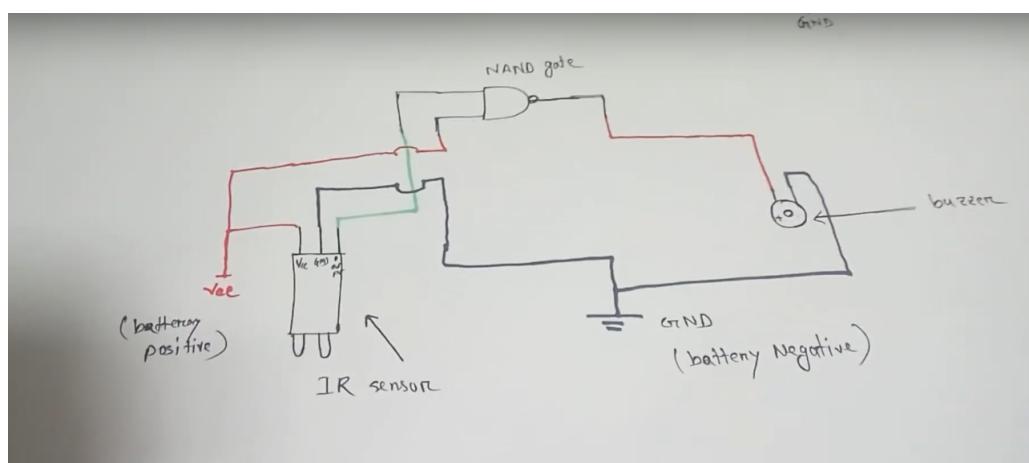
2.1 Introduction

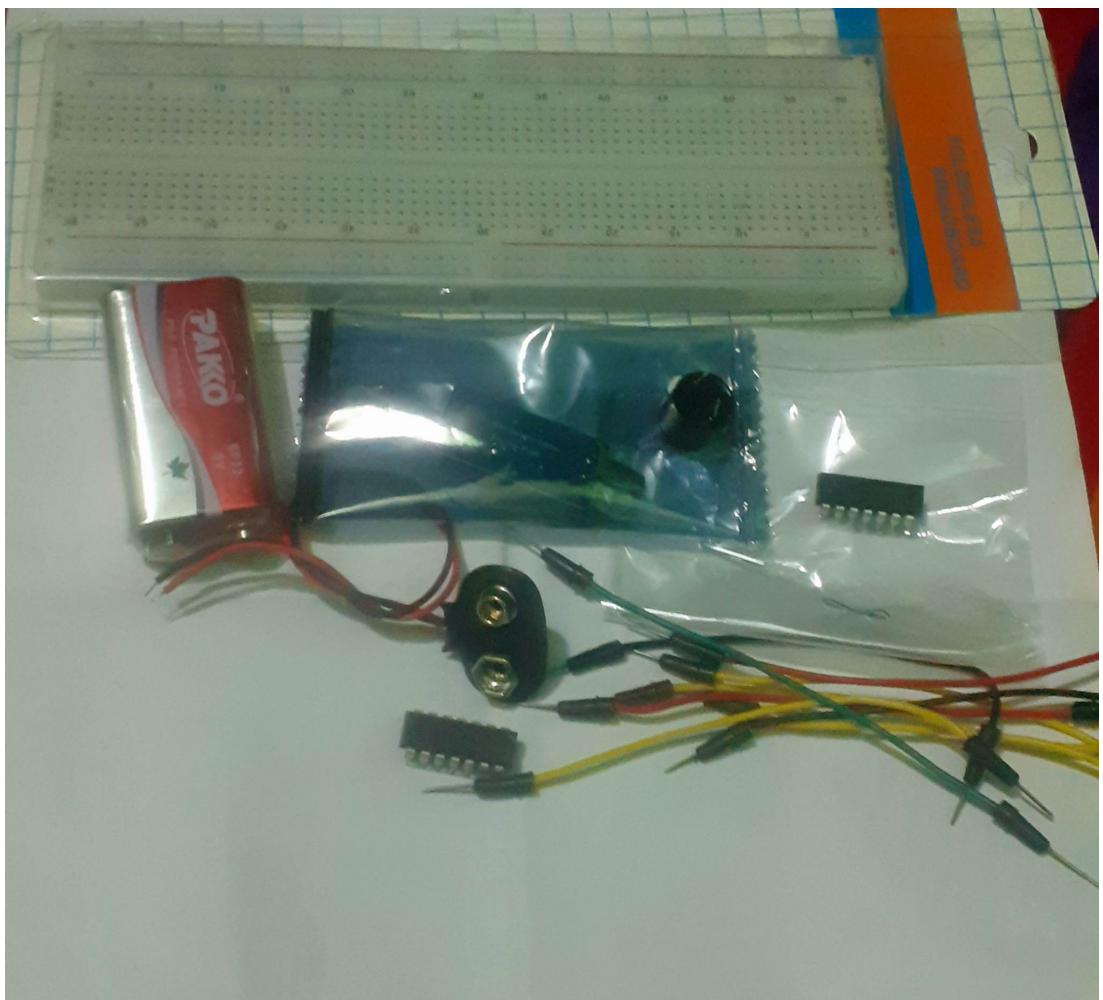
Execute plan using the circuit.

2.2 Instruments

- Breadboard
- NAND Gate (7400lc)
- IR Sensor
- Buzzer
- Battery and battery header
- Jumping wires

2.3 Project Details





Chapter 3

Outcomes:

- a. A functional motion-activated doorbell system that accurately detects motion and triggers a doorbell sound.
- b. An optimized system with configurable settings to meet user preferences.
- c. A user-friendly interface for adjusting system parameters and modes.
- d. Documentation providing clear instructions for system assembly, operation, and troubleshooting

Chapter 4

Conclusion

The motion-activated doorbell system aims to provide a convenient and efficient way for visitors to announce their arrival. By implementing a digital logic-based solution, the system will offer reliable motion detection and sound generation capabilities, with the added flexibility of user-configurable settings.