



CSE 316 Project

A report on

Smart Voting Center

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Chapter 1

Introduction

For our CSE 316 Microcontroller Project, we tried to create a Smart Voting Center. Due to the nationwide lockdown and deteriorating Covid situation, we had to resort to a software implementation only. But we tried our best to implement as many features as possible.

Smart Voting Center is an atmega32 based voting center that allows voters to cast their votes after going through some security protocols. In this project, we have implemented a temperature measuring unit to detect the potential covid patients. A motion sensor and keypad based door security has been established for the safety of the voting room.

The main two modules of our project are -

- Voter Verification
- Voting Process

Chapter 2

Sensors, Actuators & Components

We used two sensors in our project-

- **LM-34 Temperature Sensor:** This sensor was used to measure the body temperature of the voters to rule out potential covid positive patients. Thus we tried to create a safe space inside the voting center.
- **Motion Sensor(PIR Sensor):** The Motion sensor was used to detect voter presence in front of the voting room. When the motion sensor sensed movement, the unique door lock code was asked from the voters.

We also used an actuator in our project -

- **DC Motor:** The DC motor was used to open and close the door of the voting room, the motor was used with a Motor Driver as connecting a DC Motor directly to a microcontroller is not enough, because the required electricity of a motor is much more than what a microcontroller can provide, the Motor Driver (L293D Driver) was used in that regard.

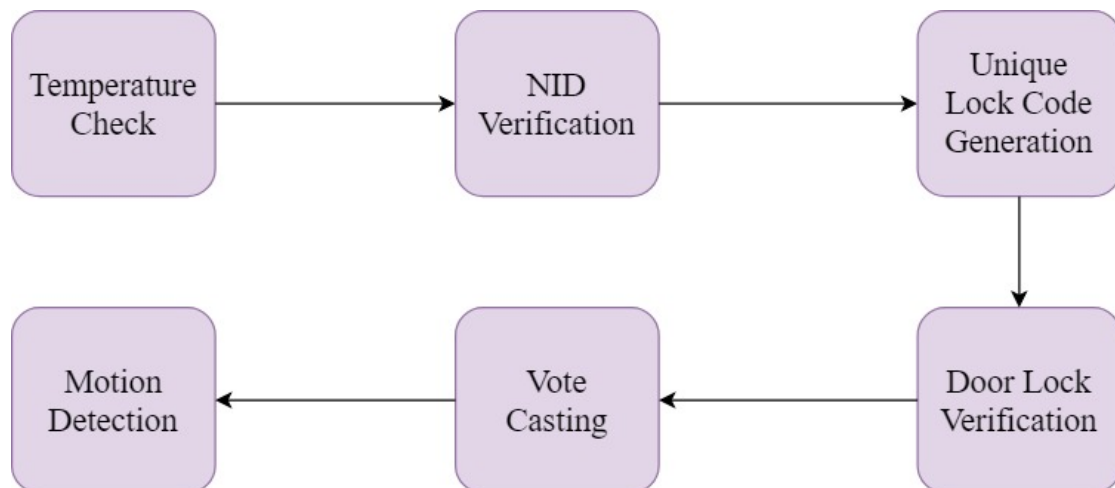
The Other Components that we needed are-

- Two AtMega32 Microcontrollers
- Two 16x2 LCD Displays (LM016L)
- An RFID Reader Module (EM-18)
- 3x4 Keypad
- L293D Motor Driver
- Buttons, Resistors, Capacitors, 5V Powers, Grounds
- NAND Gate, LOGICTOGGLE, LOGICSTATE etc

Chapter 3

Project Workflow

Workflow of a Voter:



Workflow of an Admin:



Circuit Diagram

The Proteus Circuit Diagram of our project:

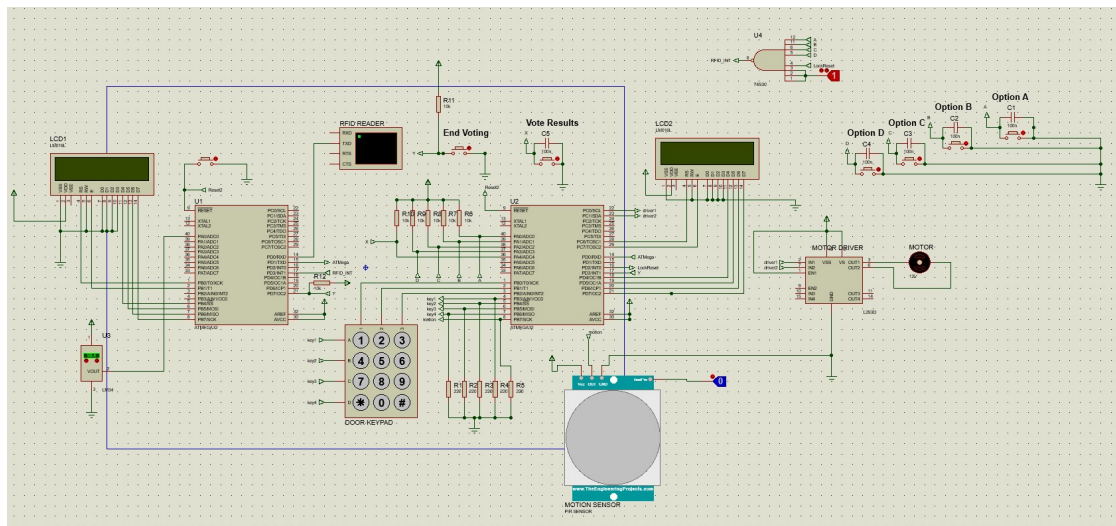


Figure 4.1: Circuit Diagram

Chapter 5

Difficulties

As ours was a software project, we did not face as many hardware related difficulties as others. But we still faced some mentionable difficulties -

- We failed to find a Proteus Library of IR Temperature Sensor as they are more accurate for measuring Human Body Temperature. So we had to resort to using LM-34 Temperature Sensor which is more error prone.
- We also had to struggle to find a Motion Sensor Library for Proteus, but luckily we found a Library for Proteus [here](#). We had to add this as an external library as it is not available in Proteus.