User Manual for Arduino-Based Electronic Voting Machine

This user manual provides step-by-step instructions on setting up and using the Arduino-based electronic voting machine.

Overview

The Arduino-based electronic voting machine is designed for small-scale elections. It provides secure and user-friendly voting with audible confirmation and real-time display of votes.

Components

Included Hardware:

- Arduino Uno (or compatible microcontroller)
- LCD Display (16x2)
- Push Buttons
- Buzzer
- Resistors
- Breadboard
- Connecting Wires

Required Tools:

- Computer with Arduino IDE installed
- USB cable for Arduino

Setup Instructions

1. **Hardware Assembly:**
   - Connect the components as per the circuit diagram provided in the /hardware/circuit_diagram.png file.
   - Ensure proper connections between buttons, the LCD display, and the Arduino board.

2. **Software Installation:**
   - Download and install the Arduino IDE.
   - Clone the project repository:

o   git clone https://github.com/your-username/voting-machine-project.git

cd voting-machine-project

3. **Upload the Code:**

   o   Open the voting_machine.ino file in the Arduino IDE.

   o   Connect the Arduino board to your computer using the USB cable.

   o   Select the correct board and port under the **Tools** menu.

   o   Click the **Upload** button to upload the code to the Arduino board.

4. **Power the System:**

   o   Use a 5V power supply or connect the Arduino to a computer via USB to power the system.

Usage Instructions

1. **Startup:**

   o   Ensure all connections are secure.

   o   Turn on the power supply.

   o   The LCD display will initialize and show the message: Welcome to Voting!.

2. **Casting Votes:**

   o   Each candidate is assigned a button.

   o   To vote for a candidate, press the corresponding button.

   o   The buzzer will sound to confirm that the vote has been registered.

   o   The LCD will display the updated vote count.

3. **Displaying Results:**

   o   Press and hold the RESULT button to display the total votes for each candidate.

   o   The LCD will cycle through the results, showing the vote count for each candidate.

4. **System Reset:**

   o   To reset the system for a new voting session, press the RESET button or restart the Arduino board.

Troubleshooting

Problem	Possible Cause	Solution
LCD not displaying correctly	Incorrect wiring	Recheck the LCD connections
Buzzer not sounding	Loose connections	Ensure the buzzer is properly wired
Votes not registering	Faulty button or connection issue	Test the button and connections

Maintenance

- Regularly check the connections and wiring to ensure the system operates smoothly.

- Replace any damaged components, such as buttons or wires.

Safety Precautions

- Do not connect the system to high-voltage power sources.

- Handle the components carefully to avoid damage.

- Disconnect the system from power when making modifications.