Digital Electronics Lab

Seven Segment Display using Arduino

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Aim

To interface a seven segment display with Arduino and verify the output.

Components Required

- Arduino Uno
- Seven segment display
- Breadboard
- Resistors
- Connecting wires

Theory

A seven segment display is an electronic display device used to represent decimal numbers. It contains seven LEDs labelled a to g. By turning ON specific segments, digits from 0 to 9 can be formed.

In a common anode configuration, the common terminal is connected to the supply voltage and a LOW signal is required to glow a segment. HIGH signal keeps the segment OFF.

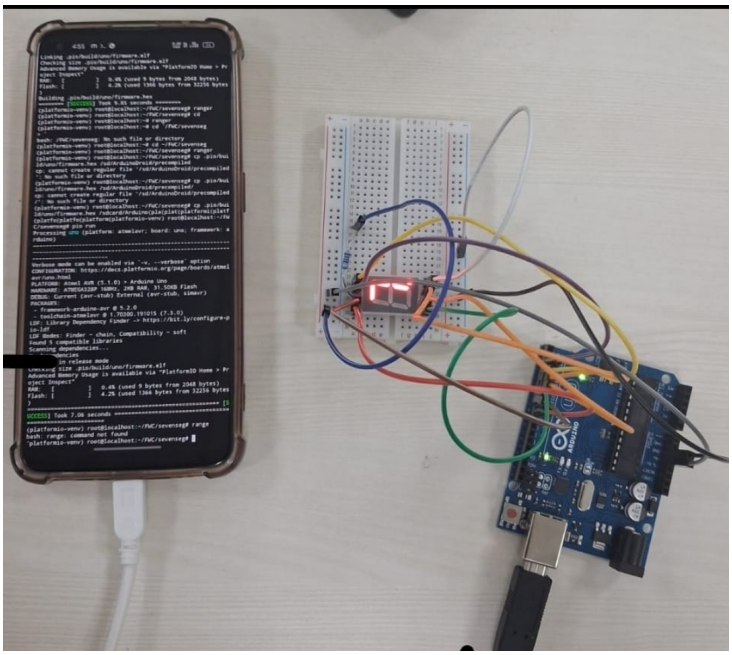
Circuit Connections

The segment pins were connected to Arduino digital output pins through current limiting resistors. The common terminal of the display was connected to Vcc. Proper grounding was ensured.

Procedure

1. Placed the seven segment display on the breadboard carefully.
2. Checked the pin configuration of the display.
3. Identified the common terminal.
4. Connected the common terminal to Vcc.
5. Connected each segment pin (a to g) to Arduino digital pins through resistors.
6. Verified that all wiring connections were tight.
7. Connected the Arduino board to the mobile using USB cable.
8. Opened the Arduino programming environment.
9. Uploaded the program to the Arduino board.
10. Powered the circuit.
11. Observed the segments glowing according to the program.
12. Compared the output with the expected digit.

Hardware Setup



Result

The required digit was displayed successfully on the seven segment display.

Learning Outcome

Understood the working of a seven segment display and learned how Arduino output signals can control individual LED segments to generate decimal numbers.