

I'll help you load the code into your Arduino board. **Here's a step-by-step guide:**

1. First, you'll need to install the Arduino IDE if you haven't already. Let me help you download and install it:

Errored background terminal command

~/CascadeProjects/arduino_multifunction

> start <https://www.arduino.cc/en/software>

Error Details

failed to run command start <https://www.arduino.cc/en/software>: exec: "start": executable file not found in %PATH%

2. After installing Arduino IDE, you'll need to install the required libraries. In Arduino IDE, go to:
 - Tools → Manage Libraries
 - Search and install these libraries:
 - **Wire**
 - **LiquidCrystal I2C**
 - **Servo**
 - **MFRC522**
 - **Stepper**

3. Hardware Connection: Here's the pin connection guide for your Arduino Mega:

CopyInsert

LCD Display (I2C):

- SDA → Pin 20
- SCL → Pin 21
- VCC → 5V
- GND → GND

Switches:

- Switch 1 → Pin 2
- Switch 2 → Pin 3
- Switch 3 → Pin 4
- Switch 4 → Pin 5
- Switch 5 → Pin 6

Buzzer:

- Positive → Pin 7

- Negative → GND

Home Security:

- TTP229 SCL → Pin 8
- TTP229 SDO → Pin 9
- Button → Pin 10
- Servo → Pin 11
- Gas Sensor → Pin 12
- Fan Relay → Pin 13
- Soil Moisture → A0
- Water Pump → A1

Shop Safety:

- Water Sensor → A2
- Vibration Sensor → Pin 22
- Smoke Sensor → A3
- Flame Sensor → Pin 23
- Shop Relay → Pin 24

School Attendance:

- IR1 → Pin 25
- IR2 → Pin 26
- School Servo → Pin 27
- RFID SS → Pin 28
- RFID RST → Pin 29

Traffic System:

- IR3 → Pin 30
- IR4 → Pin 31
- RFID RST → Pin 32
- RFID SS → Pin 33
- Traffic Servo → Pin 34

Defense System:

- Ultrasonic TRIG → Pin 35
- Ultrasonic ECHO → Pin 36
- Button → Pin 37
- Defense Servo → Pin 38

4. To upload the code:

1. Connect your Arduino Mega to your computer using a USB cable
 2. Open Arduino IDE
 3. Open the **smart_system.ino** file
 4. Select the correct board:
 - Tools → Board → Arduino Mega 2560
 5. Select the correct port:
 - Tools → Port → (Select the COM port where your Arduino is connected)
 6. Click the Upload button (→) or press Ctrl+U
5. Troubleshooting: If you encounter any issues:
- Double-check all wire connections
 - Verify all libraries are installed
 - Make sure the correct board and port are selected
 - Check if any pins are shorted
 - Verify the power supply is adequate (especially for servos and motors)

Power Supply Considerations:

- Use a separate power supply for motors and servos
- Connect all GND pins together
- Use decoupling capacitors near power-hungry components
- Don't exceed the current rating of the Arduino pins (40mA per pin)