



PROJECT **REPORT ON** **SMART ROAD** **MANAGEMENT** **SYSTEM**

Prepared by :

Radowan Ahmed

011201420

Pallab Kumar Paroi

011191271

Siyam Ahmed

011192128

Shariar Rifat

011201275

Mobarok Ali

011201300

1 . Introduction

Traffic management is a critical aspect of urban infrastructure, ensuring the smooth flow of vehicles and pedestrians while enhancing safety and efficiency. Traditional traffic management systems often rely heavily on manual intervention, leading to inefficiencies and delays. In response to these challenges, we propose the development of an Automated Traffic Management System (ATMS) equipped with innovative features to optimise traffic flow and enhance safety.

PROJECT



2 . Overview

Speed Detection:Utilizes sensors to monitor vehicle speeds.Data collected can also be used for traffic flow analysis, identifying congestion points, and optimizing traffic signal timings.

Security Checking:Incorporates surveillance cameras and advanced technologies like facial recognition or license plate recognition.

Noise detection: If the noise level is high than countdown will restart as punishment.

Road monitoring:There is a camera which will monitor the road.

Road information website:We have a website to collect all information .

- Speed detection
- Security Checking
- Noise detection
- Road Monitoring
- Road information website

3. Components Details

- 1. **Arduino Uno:** The Arduino Uno is a microcontroller board based on the ATmega328P, widely used for DIY electronics projects. It has 14 digital I/O pins, 6 analog inputs, a USB port, and a power jack. It's favored for its simplicity, extensive community support, and versatility in creating interactive devices.
- 2. **ESP-32 CAM:** The ESP-32 CAM is a low-cost development board with a built-in camera module. It features an ESP32-S chip with Wi-Fi and Bluetooth capabilities, making it ideal for IoT applications. It has an OV2640 camera, multiple GPIO pins, and supports microSD card storage. It's widely used for wireless camera projects, security systems, and image processing tasks.
- 3. **ESP 8266:** The ESP8266 is a low-cost Wi-Fi microchip with microcontroller features, ideal for IoT projects. It supports TCP/IP and can be programmed via Arduino IDE, making it perfect for smart home and wireless networking applications.
- 4. **Servo Motor:** A servo motor is a precise rotary actuator used to control angular position, speed, and acceleration, commonly found in robotics and automation.
- 5. **IR Sensor:** An IR sensor detects infrared light to sense objects and measure distances. It is commonly used in obstacle detection, motion tracking, and remote control systems due to its reliability and simplicity.
- 6. **Mic Module:** A mic module is a small device that captures audio signals using a microphone and converts them into electrical signals. It's commonly used in voice recognition systems, audio recording, and sound detection applications.
- 7. **Display Module:** A display module is an electronic component used to visually present information. It includes various types like LCD, OLED, or LED screens, and is commonly used in devices to show data, graphics, and user interfaces.

4. Cost

Component name	Quantity	Price
ESP8266	1	420
ESP 32	1	640
IR sensor	2	140
Sound Sensor	1	60
Digital Display	1	125
Arduino Uno	1	800
Servo Motor	1	150
Decoration+Wire	-	500
Total Cost		2825

5. Conclusion

In summing up the Smart Road Management System, the cool stuff we've talked about, like catching loud cars, watching roads with cameras, and having a website for road info, show us a glimpse of the future road world. These things mean our roads are getting smarter. They're becoming safer and better at handling traffic. And they're doing it by using fancy technology and data to help everyone who uses the roads.

By keeping up with new tech and working together, we can make our roads even smarter. That means fewer accidents, less noise, and smoother journeys for everyone. So let's keep going and make our roads the smartest they can be!