IOT PRODUCT

Sleep Detective Glasses

Problem Statement:

1. **Driver Fatigue Risk**: Drowsy driving is a leading cause of road accidents, endangering lives.
2. **Lack of Real-Time Detection**: Manual observation is ineffective, as fatigue signs may go unnoticed.
3. **Limited Alert Systems**: Traditional methods like sound alarms or vibrations are not always effective in preventing accidents.

Components Used:

- **IR Sensor** – Detects eye closure to monitor drowsiness.
- **Arduino Nano** – Processes sensor data and triggers alerts.
- **DC Motor** – Controls the wheel movement based on the driver's eye state.
- **Buzzer** – Provides an audible alert when drowsiness is detected.
- **9V Battery** – Powers the entire system.
- **Jumper Wires & Breadboard** – Used for circuit connections.

Working Principle:

1. Drowsiness Detection:

The **IR sensor** continuously monitors the driver's eye activity. If the eyes remain closed for a set duration (2-3 seconds), the system detects drowsiness.

2. Alert Mechanism:

The **Arduino Nano** processes the sensor signal and activates multiple alerts:

- **Buzzer :**Provides sound alerts.
- **DC Motor Response**: Stops the motor to prevent accidents.

3. Safety Response:

If the driver does not respond to initial alerts, the system **gradually slows down the vehicle** (if integrated into the vehicle control system), ensuring safety.

This **Sleep Detective Glasses** system enhances road safety by providing **real-time drowsiness monitoring** and **immediate alerts**, significantly reducing accident risks.