DHOLE PATIL COLLEGE OF ENGINEERING
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ANTI SLEEP ALARM SYSTEM

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INTRODUCTION & PROBLEM STATEMENT

Drowsiness during driving is a major factor in road accidents, causing injuries and fatalities each year. Many drivers, especially those on long routes or night shifts, struggle to stay alert and may unintentionally fall asleep at the wheel. The Anti Sleep Alarm System aims to detect early signs of sleepiness and provide immediate alerts to prevent accidents

COMPONENTS

Arduino Uno

Arduino/Genuino Uno is a microcontroller board based on the ATmega328P. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP header and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.

COMPONENTS

Relay

Relays are electrically operated switches that open and close the circuits by receiving electrical signals from outside sources.

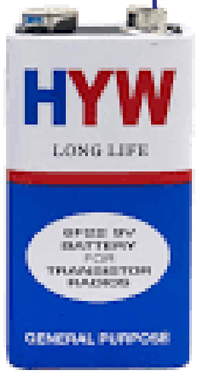
Piezo Buzzer

In simplest terms, a piezo buzzer is a type of electronic device that’s used to produce a tone, alarm or sound.

COMPONENTS

Battery 9V

A container consisting of one or more cells, in which chemical energy is converted into electricity and used as a source of power.



Do Motor

A machine that converts electrical energy into mechanical energy by means of the forces exerted on a current-carrying coil placed in a magnetic field.

COMPONENTS

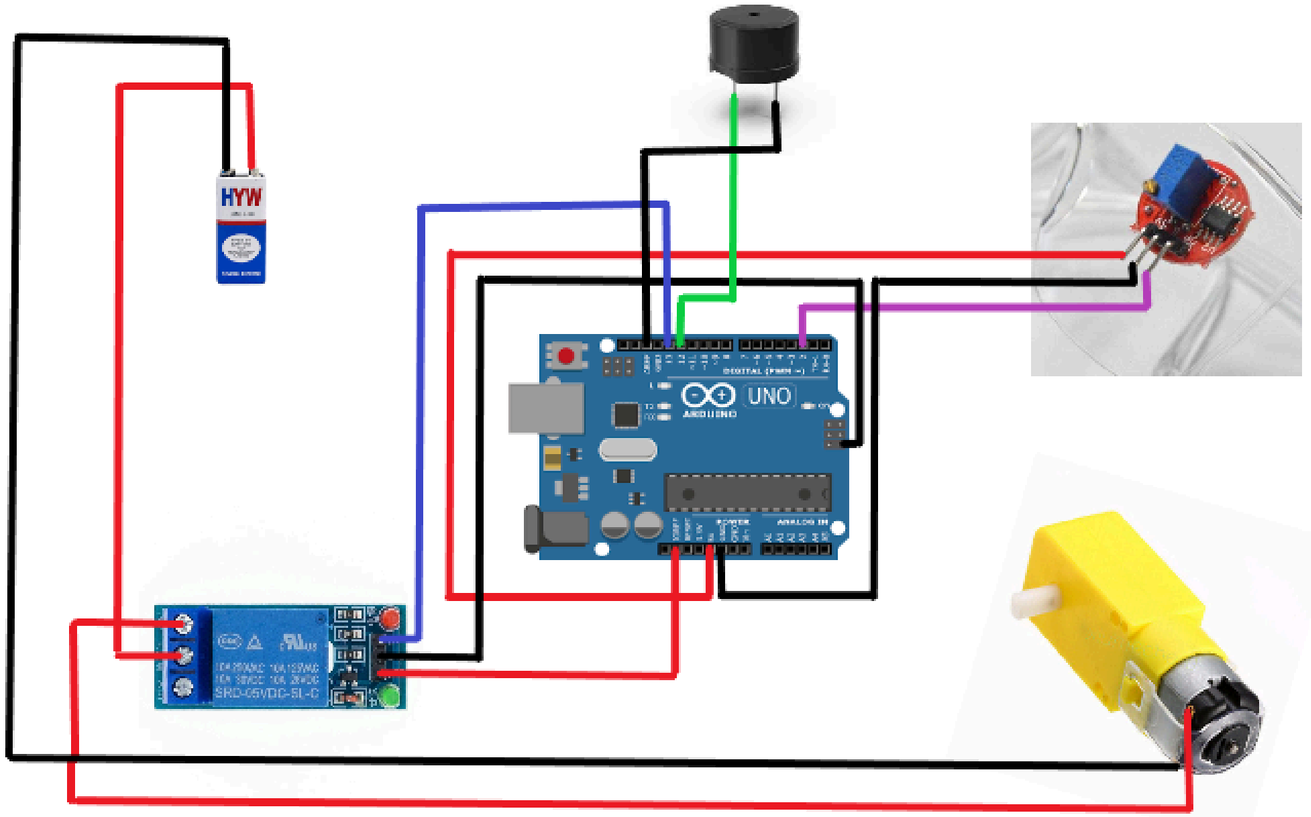
SPST Switch

An SPST switch embraces a basic "ON/OFF" control of a single circuit and consists of two terminals that serve as electrical connection points.

IR Sensor

An infrared sensor is an electronic device that emits in order to sense some aspects of the surroundings. An IR sensor can measure the heat of an object as well as detect the motion.

CIRCUIT DIAGRAM



WORKING

To start the circuit we first click the ‘ON’ button on the SPST switch. Then the electrical supply will pass and the motor will start working because there was a loop of 9V battery. The relay will remain closed and the circuit will open. Through an IR sensor we will detect the output. Output we will get with the help of Arduino UNO. While driving if the eye will close for 3 sec then the buzzer will detect. After buzzing for 2 sec then also the eye will close so the relay will open and the circuit will close. That means the car will stop.

APPLICATIONS

- **Personal Vehicles:** Prevents accidents during long drives, night shifts, or fatigue-prone trips for individual drivers.
- **Industrial Settings:** Beneficial in factories or industrial plants where machine operators and workers must remain vigilant to avoid safety incidents
- **Medical and Healthcare Monitoring:** Adapted for use with patients in hospitals who are at risk of falling asleep during critical monitoring, or in sleep disorder studies.

APPLICATIONS

- **Security Applications:** Used by security guards at ATMs, banks, or military bases to prevent dozing on duty and enhance vigilance.
- **Wearable Technologies:** Embedded into safety glasses, headbands, or other personal wearables for flexible, lightweight alerting in a variety of contexts.
- **Remote and Dangerous Locations:** Used in mining, oil rigs, or remote installations where prolonged shifts and isolation may increase fatigue risk.

ADVANTAGES

- Provides real-time monitoring of alertness.
- Helps prevent accidents and errors caused by fatigue.
- Can be used in multiple fields (driving, healthcare, industries, education).
- Cost-effective and portable solution.
- Improves safety, productivity, and awareness.

RESULT

- Detection systems using eye-blink sensors, IR modules achieved high accuracy—validation rates up to 99.18%—in identifying drowsy states in real-time scenarios.

CONCLUSION

- The Anti Sleep Alarm System offers a practical, cost-effective solution to the critical problem of drowsy driving, providing real-time monitoring and immediate proactive alerts.
- By effectively detecting early signs of fatigue and prompting corrective action, these devices reduce accident risks, enhance personal and public safety, and promote healthier driving and work habits.

THANK YOU