

# Rayan Alam

rayanalam005@gmail.co  
m

+923334141261

Peshawar, Pakistan

[Linkedin/rayanalam005](#)

[Github/KhanBuilds](#)

*Motivated Computer Science undergraduate, dedicated to building a strong foundation in software development and intelligent systems. Proven ability to transition from technical theory to practice, with hands-on experience developing smart vision systems and proposing innovative solutions for infrastructure safety. A proactive problem-solver eager to apply expertise in C++, computer vision, and system design to impactful, real-world engineering challenges.*

## EDUCATION

---

### Institute of Management Sciences - Bachelor of Science, Computer Science

2024 - current, GPA: 3.41/4

Peshawar, Pakistan

### Hadaf Group of Colleges - FSC, Pre-Medical

2021 - 2023, Percentage: 77.7%

Peshawar, Pakistan

## PROJECTS

---

### [Face tracking Servos](#)

Dec 2025 - Dec 2025

- **Developed a real-time computer vision system** in **Python** using **OpenCV** to detect and track facial landmarks through a live camera feed.
- **Architected a hardware-software bridge** to translate digital 2D image coordinates into precise 3D physical movement commands for a servo-driven gimbal.
- **Integrated an Arduino-controlled dual-servo system** with a mounted laser, utilizing serial communication to ensure low-latency tracking of user movement.
- **Optimized control logic** to maintain laser alignment with detected faces, demonstrating proficiency in **sensor integration, microcontrollers, and spatial geometry**.

### [Sleep detector](#)

Jul 2025 - Jul 2025

- **Developed a monitoring application** using **MediaPipe** and **OpenCV** to track facial mesh landmarks, focusing specifically on eye-lid aperture and ocular positioning.
- **Engineered a mathematical detection algorithm** using the **Math** library to calculate the Eye Aspect Ratio (EAR), accurately determining the user's state as "Awake" or "Sleeping" in real-time.
- **Built a cross-platform data pipeline** via **PySerial** to transmit state-change triggers from a Python-based processing environment to an **Arduino** microcontroller.
- **Integrated an external LCD hardware interface** to provide immediate visual feedback on the user's status

### [Proximity alert project using the Arduino uno R3 and HC-SR04 ultrasonic sensor](#)

- Used HC-SR04 to measure object distance in front of sensor
- Turned on red LED when object detected within 10cm (danger zone)
- Kept green LED on when object was beyond 10cm (safe zone)

- Implemented logic using digitalWrite based on measured distance
- Breadboard setup with Arduino Uno R3 and two LEDs (red, green).

## [Motion Detecting project using Arduino Uno R3 and HC-SR501 motion sensor](#)

- Connected HC-SR501 PIR sensor to detect motion
- Wired red LED to turn ON when motion is detected
- Used digitalWrite for sensor input and digitalWrite for LED output
- Basic breadboard setup with Arduino Uno R3.

## **SKILLS**

---

- C++
- Python
- Arduino, Microcontrollers
- Git, GitHub, Visual Studio Code
- Computer Vision

## **CERTIFICATIONS**

---

- AI For Everyone - DeepLearning.AI
- AI Solutions Challenge - Hack2Skill
- Photonics innovation challenge -SPIE-OPTICA GIKI Chapter