Raghunandan

# IoT Enthusiast

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## SUMMARY

Innovative IoT and embedded systems developer with a strong track record of building **automation, data management, and cloud- integrated solutions**. Experienced in developing **real-time monitoring systems, remote-controlled devices, and smart solutions** with a focus on **efficiency, reliability, and scalability**. Skilled in **integrating cloud platforms, optimizing data flow, and implementing error-handling mechanisms** to enhance system performance and stability.

## EXPERIENCE

Intern - 1 month (Remote)

ANEDYA Systems Pvt. Ltd., Ahmedabad

ANEDYA is a **cloud-based IoT platform** that offers scalable and secure solutions for **device lifecycle management, data aggregation, and real-time monitoring**. Founded in **July 2023** in Ahmedabad, India, the company enables businesses to efficiently connect and manage IoT devices without building complex infrastructure.

* **Project: Weather Station with Automatic Irrigation System**
* Developed an **IoT-based weather monitoring and irrigation system** using **ESP32, DHT11, and soil moisture sensors**.
* Designed a **real-time dashboard** to display live data, including **temperature, humidity, and soil moisture levels**.
* Integrated **motor control buttons** on the dashboard to automate or manually control the irrigation system.
* Ensured seamless **data transmission and visualization** using ANEDYA’s cloud platform.
* Improved system efficiency by implementing **automated watering triggers** based on real-time soil conditions.

## SKILLS

Programming Languages: Python, C++(Basics)

Microcontrollers: Arduino (UNO, NANO, MEGA), ESP8266, ESP32, ESP32-CAM

Software & Tools: Arduino IDE, Tinkercad,Jupyter, VS Code

Libraries & Frameworks: NumPy, OpenCV, Pandas, Mediapipe, Matplotlib, Django

Cloud Platforms: AWS, Firebase, ANEDYA, Blynk IoT

Databases: MySQL

Operating Systems: Linux, Windows.

## PROJECTS

Remote Home Automation System

Designed a Wi-Fi-based home automation solution, allowing remote control of appliances through a mobile app, enhancing convenience and energy efficiency.

* Tech: ESP8266, Relay Modules, MQTT protocol
* Description: Designed a Wi-Fi-based system to remotely control home appliances via a mobile app, enhancing convenience and energy efficiency.

IoT-Powered Weather Station (AWS)

Created an IoT-based weather station with AWS integration for remote data storage, visualization, and analysis.

* Tech: ESP8266, DHT11, MQ135, AWS, HTTP protocol
* Description: Collected temperature, humidity, and air quality data, storing it on AWS for real-time monitoring and insights.

## PROJECTS

Touchless Smart Sanitizer Dispenser

Built a contactless hand sanitizer dispenser with automatic detection and dispensing, promoting better hygiene standards.

* **Tech:** ESP8266, IR Sensor, Servo Motor
* **Description:** Utilized an IR sensor to detect hand proximity and trigger sanitizer dispensing without physical contact.

# Wi-Fi Controlled RC Car with Video Surveillance

Developed a remotely controlled RC car with real-time video surveillance, enhancing monitoring capabilities.

* **Tech:** Arduino, ESP32 Cam, Wi-Fi, HTTP protocol
* **Description:** Integrated ESP32 Cam for live video streaming and remote vehicle control via Wi-Fi.

Automated Smart Irrigation System

Designed an automated irrigation system that optimizes water usage based on real-time soil moisture data.

* **Tech:** ESP32, Soil Moisture Sensor
* **Description:** Triggered watering actions automatically, preventing overwatering or underwatering, improving plant health.

LoRa-Based IoT Data Management Platform

Engineered a robust IoT data management system to collect, transmit, and store sensor data securely using LoRa technology.

* **Tech:** Arduino, LoRa, Python, MySQL , HTTP , SMTP protocals
* Ensured reliable real-time data flow with error handling mechanisms and secure MySQL database storage.

**Project:** Solar Panel Discoloration Detection using Deep Learning  
**Description:** Developed a deep learning solution using a custom CNN (TensorFlow/Keras) to classify solar panel discoloration defects. Integrated Grad-CAM for visual interpretability and deployed the model via a Django web application with OpenCV-based image preprocessing.

Technologies used: Python, TensorFlow, Keras, OpenCV, Django, Grad-CAM, HTML, and Bootstrap.

**Project Title:** Django Movie Ticket Booking Web App

**Description:**  
Developed a Django web application featuring session-based authentication, ticket booking, and payment processing with AWS SNS notifications. Integrated external REST APIs for dynamic movie data, car details, and food & drink information with a responsive, card-based UI.

**Technologies Used:** Python, Django, HTML, CSS, JavaScript, REST APIs, AWS SNS, Docker, Git.