



Embedded Systems Intern Assignment - upliance.ai

About Us:

upliance.ai has built India's first AI cooking assistant. Designed for beginners, the upliance simplifies and automates all parts of cooking for yourself. We're on a mission to push the boundaries of what home appliances can do for young India. As a disruptive startup, we take pride in our unique approach, leveraging the power of AI to create hardware products that blend innovation with everyday utility. Directly collaborating closely with industry leaders like OpenAI and building fast.

Please find details of the assignment here:

Assignment: Build a Basic Heater Control System

Problem Statement:

Design and implement a simple heater control system using a temperature sensor and an actuating mechanism (simulated heating). The goal is to simulate or build a basic embedded system that turns a "heater" on or off based on temperature thresholds.

Part 1: System Design

Deliverable: PDF or Markdown document

The intern should address the following:

- Identify the minimum sensors required for heating detection and control
- Recommend a communication protocol and justify the choice
- Provide a block diagram showing key modules
- Outline a future roadmap: How the system could evolve to support overheating protection, multiple heating profiles.



Part 2: Embedded Implementation

Platform: [Wokwi](#)

Language: C/C++ (Arduino or ESP-IDF)

Requirements:

- Implement a temperature-based state tracker with at least the following states:
 - Idle, Heating, Stabilizing, Target Reached, Overheat
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- Continuously read temperature
- Turn the heater on/off based on preset thresholds
- Log temperature and heater status over Serial

Bonus Features:

- BLE advertising to broadcast the current heating state
- Buzzer or LED indicator for visual feedback
- Use of FreeRTOS or timer interrupts for periodic operations

Deliverables:

- A design document (PDF/Markdown)
- A code repository (GitHub or ZIP), including a README
- A simulation link (Wokwi)

Deadline: The assignment must be submitted within **120 hours/5 days**.

Submission Format: The assignment must be submitted through the **google form** link provided in the mail.