SUHAS NADAKATTIN

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Summary

Enthusiastic Software Developer seeking to leverage my expertise in firmware development, embedded systems, and IoT solutions. Eager to contribute my skills in an innovative and growth- oriented environment that fosters professional development.

Experience

Abhyudyaya Techno Solutions Pvt Ltd — 10/2023 – 10/2025

Software Developer — **Hubli, KA**

- Integrated, tested, and deployed end-to-end IoT and embedded solutions for Smart City, Healthcare, Agriculture, and Home Automation projects across government institutions.
- Developed firmware for ESP32, ESP8266, STM32, Arduino, and Raspberry Pi for real-time sensing, control, and automation.
- Integrated sensors and peripherals using UART, I²C, SPI, ADC, PWM, and RS-485 protocols.
- Implemented LoRa, Wi-Fi, Bluetooth, MQTT, and HTTP for reliable device-to-cloud communication.
- Developed Flask-based web dashboards for visualization, analytics, and remote device control.
- Led embedded design, system integration, testing, debugging, PCB schematic support and deployment of production IoT solutions.
- Supported and maintained IoT infrastructure across 8 GTTC centers, ensuring reliable performance and uptime.
- Delivered technical support and demonstrations for educational solutions, contributing to curriculum design and training module development for skill-based learning labs.
- Set up and deployed IoT and embedded systems for a STEM Education Lab at GTTC MSDC Hubli, integrating AR/VR, AI, Robotics, and hands-on learning modules.
- Managed BOM preparation, vendor coordination, component procurement, and inventory for hardware projects.
- Prepared technical documentation, tenders, quotations, POs, and deployment reports for client projects.

Projects

IoT Healthcare Kit

Project Description:

Raspberry Pi 4 based IoT healthcare monitoring system capable of capturing ECG, SpO_2, respiratory rate, NIBP, and body temperature in real time. The system integrates multi-sensor communication over I²C, SPI, and UART, with ADC-based pipelines for high-resolution biomedical signal acquisition. A 13.3" display provides on-device visualization, while HTTP cloud connectivity enables remote monitoring, alerting, and long-term data analysis through efficient data parsing, logging, and storage modules.

Smart Agriculture System

Project Description:

LoRa and ESP32-based smart agriculture system that automates irrigation and monitors soil and environmental parameters for precision farming. The system incorporates a custom PCB pump controller, RS-485 based long-distance communication using pH, EC, and NPK sensors and automated control logic for pumps and solenoid valves based on real-time soil moisture and climate conditions.

Energy-Efficient Street Light

Project Description:

IoT-enabled smart street lighting system that adjusts brightness based on PIR-based motion detection to significantly reduce energy consumption and operating costs. The solution uses LoRa communication for long-range remote monitoring and centralized control, and features PCB based driver unit optimized for 40W LED street lights. Powered by a solar panel and a battery, the system ensures reliable off-grid operation, while adaptive control algorithms further optimize power usage and enhance overall system performance.

Traffic Light with Air Pollution Monitoring

Project Description:

LoRa-enabled smart traffic light system that dynamically manages signal timing while continuously monitoring environmental conditions at urban intersections. The solution integrates PM1.0, PM2.5, PM10, CO_2, and gas sensors (MQ135) using UART and I^2C interfaces to measure real-time air qualit. A PCB based controller operates the R/Y/G lights and interfaces multiple sensors, while data is transmitted via LoRa to a central dashboard for real-time visualization of AQI metrics and traffic signal status, enabling smarter and more sustainable urban traffic management.

Smart Home Automation

Project Description:

A hybrid Wi-Fi and LoRa smart home automation system using ESP32 to enable centralized control and monitoring of lighting, appliances, and security devices. The solution supports both manual and cloud-based operation, integrates energy monitoring, and incorporates intelligent features such as lux-based curtain automation and PIR-based motion detection. A PCB control module interfaces with energy meters, sensors, and household appliances, providing a scalable, efficient, and user-friendly home automation experience.

Waste Management System

Project Description:

IoT enabled Smart Waste Management System using an ESP32-based 7" HMI touchscreen display and a LoRa-based ultrasonic sensor to remotely monitor waste bin levels in real time. The system transmits bin-fill data over TTN server to a central dashboard, provides on-device visualization through an interactive HMI interface, and generates alerts for full-capacity bins, enabling optimized collection routes and improved municipal waste management efficiency.

IoT Feedback System

Project Description:

IoT-enabled Smart Feedback System using a Raspberry Pi 4 and a 10.1" capacitive touch display to record user satisfaction and feedback in public spaces. The system captures touch-based inputs, stores data securely, and visualizes real-time feedback metrics on an IoT dashboard, enabling improved service monitoring and data-driven decision-making.

Water Quality Management System

Project Description:

IoT-based Water Quality Management System using Raspberry Pi 4, Arduino Uno, and a 10.1" capacitive touch display to monitor and control water purification and distribution processes. The system integrates industrial-grade sensors including pH, EC , TDS, turbidity, and temperature sensors to continuously assess water quality in real time. A solenoid valve enables automated water flow control, while a multi-stage pre-filter housing supports improved filtration. Data is processed on the Raspberry Pi and visualized through a user-friendly touchscreen interface, enabling accurate monitoring, automated valve operation, and efficient management of water treatment systems.

Skills

Programming Languages: C, Python, Embedded C, HTML/CSS, Basics of Javascript, SQL

Technologies & Framework: Flask, Linux, Git, Bootstrap

Developer Tools / Platforms: Arduino IDE, VisualStudio Code, PyCharm, STMCubeIDE, Thonny Python, Things Network Server, Canva, MS Excel, MS Word

Microcontrollers / Processors: Arduino, ESP32/ESP8266, STM32, Raspberry Pi, Nvidia Jetson Nano

Communication Protocols: Bluetooth, WIFI, LoRa, HTTP, MQTT

Hardware Comm Protocols: UART, I2C, SPI, ADC, DAC, PWM

Soft Skills: Problem-Solving, Communication Skills, Project Management, Team Collaboration

Education

KLE Technological University Hubli (BVB) — **7.47 CGPA - 2022**

Bachelor of Engineering in Electrical & Electronics — **Hubli, KA**

KLE Prerana PU College Hubli — **78% - 2018**

Higher Secondary in Science — **Hubli, KA**

Certifications

Certification for Industrial Sensors & Automation	**KGTTI, Hubli - 2019**
Certification for PUPA an Entrepreneurial experience	**KLETECH, Hubli – 2019**
Internship on Embedded Full Stack IoT	**GTTC, Hubli – 2022**
Training on Embedded Systems	**Emertxe, Bengaluru – 2023**

Interests

- Designing IoT and embedded solutions integrated with AR-based visualization.
- Applying AI/ML techniques to sensor data for smart automation and decision-making.

References

- Drive_Link

Languages

English – Fluent **Kannada – Native** **Hindi - Fluent**