

SACHIN KUMAR

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30 Sep '97

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SUMMARY

Actively contributes to group projects and motivates members to achieve common targets. An inquisitive individual who is keen to continue learning and expanding their horizons of knowledge. Willingness to work at a well-established indigenous enterprise with an appreciative and resourceful environment that boosts self-confidence and facilitates endeavors to strive harder.

EDUCATION

Master of Science, Electronics and Communication	2020 – 2023
Bangalore University	7.8
CBSE	2012 – 2013
Sandipini hi-tech school	9.0
Karnataka Board	2013 – 2015
RNS PU COLLEGE	72.3 %
Bachelor of Science, Electronics and communication	2016 – 2020
St. Joseph's College Bangalore	5.5

WORK EXPERIENCE

Hardware Design Engineer, Janitri Innovations Pvt Ltd, Bengaluru, Karnataka	Oct 2024 – Present
<ul style="list-style-type: none"><li>Contributed to the Wireless Fetal monitoring hardware design by implementing modifications, improving existing circuits, and refining signal acquisition systems.</li><li>Worked extensively with <b>AFE (Analog Front End)</b>, <b>ADS1299 ADC</b> for biopotential signal acquisition, optimizing performance for fetal and maternal monitoring.</li><li>Developed and executed <b>test matrices</b> to validate hardware performance, utilizing available test points for rigorous debugging and analysis.</li><li>Designed and optimized hardware for a <b>Doppler-based fetal monitoring system</b>, focusing on efficient signal acquisition.</li><li>Gained hands-on experience with <b>nRF52 and BLE communication</b>, optimizing wireless connectivity for medical applications.</li><li>Worked on <b>power management strategies</b>, ensuring low-power operation for battery-driven medical devices</li><li>Experience with JTAG debuggers, oscilloscopes and Logic Analyzers</li></ul>	
Embedded Firmware Developer, NextAqua, Vijayawada	Mar 2023 – Aug 2023
<ul style="list-style-type: none"><li>Experience with software development in C/C++ for Linux or Unix-like systems</li><li>Knowledge of network and socket programming for common protocols and standards</li><li>Experience with embedded Real-Time Operating System(RTOS) in application development environments</li><li>Good background in wireless protocols like Zigbee, BLE, or WiFi</li><li>Experience working with BSP(Board Support Package)</li><li>Knowledge of interfaces such as PWM, I2C, SPI, RS232, RS485, USB, UART</li></ul>	
Embedded Software Intern , Fond , Bangalore	May 2024 – Sep 2024
<b>Automatic Pet Feeder:</b> <ul style="list-style-type: none"><li>Architected and implemented embedded software for a smart pet feeder using ESP32, ensuring seamless integration of hardware and software components.</li><li>Developed precision food dispensing system, driven by app-defined schedules and quantity parameters, utilizing stepper and servo motors for controlled motion.</li><li>Integrated load cell via I2C protocol for real-time weight monitoring and dispensing accuracy.</li></ul> <b>Fluffit Collar:</b> <ul style="list-style-type: none"><li>Developed robust firmware for a pet tracking collar, leveraging ESP-IDF within a layered architecture for modular, scalable, and maintainable code.</li><li>Integrated GSM module via UART for real-time geolocation services and continuous tracking, enabling high-reliability location-based monitoring.</li><li>Implemented accelerometer-based activity recognition and data logging system to provide continuous pet behavior analysis.</li><li>Utilized MQTT for secure and efficient communication with cloud infrastructure, ensuring low-latency updates and reliable data transmission.</li></ul>	
Power Electronics Engineer Intern, Flextron EV , Bangalore	Mar 2024 – May 2024
<ul style="list-style-type: none"><li>Designed and developed power supplies, protection boards, and other critical components for electric vehicles (EVs).</li></ul>	

- Gained expertise in various power converter topologies including DC-DC, AC-DC, Buck, Buck-boost, Flyback, and SEPIC converters.
- Optimized power supply designs for efficiency, reliability, and cost-effectiveness
- Developed and implemented firmware for a 3.3kWh AC charger, ensuring efficient and safe operation.
- Integrated communication protocols like OCPP, BLE, and Wi-Fi for seamless communication between the charger and external systems.

PROJECTS

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**DO Sensor (dissolved oxygen sensor for Aquaculture)**

Mar 2023 – Jul 2023

- Spearheaded integration of a Dissolved Oxygen (DO) sensor with an ESP32 microcontroller on a Pico board, showcasing expertise in embedded systems and IoT.
- Seamlessly incorporated UART, SPI, I2C, EEPROM, and RTC for sensor communication and efficient data management.
- Implemented Wi-Fi connectivity for real-time data transmission and remote monitoring, leveraging FreeRTOS for task scheduling and multitasking.
- Employed HTTP for JSON data updates, a unique device configuration system, and offline data retention via a backup storage mechanism, significantly enhancing data accuracy and industrial decision-making capabilities.

**Smart Weighing Scale**

Apr 2023 – Jul 2023

- Led the development of an integrated Smart Weighing Scale system in the aquaculture industry, incorporating cutting-edge technologies such as RS485 for scale communication, RPC calls on Mdash for data integration, and SPIFFS for OTA firmware updates.
- Expertly utilized UART, SPI, I2C, EEPROM, RTC, Wi-Fi, and Filesystem to ensure robust sensor communication, data storage, and remote monitoring.
- Applied embedded systems and IoT expertise to enhance aquaculture operations, delivering accurate weight measurements and enabling real-time data-driven decision-making.
- Contributed to streamlined processes and improved operational efficiency through the successful implementation of the Smart Weighing Scale system.

**IoT Based environmental Monitoring System**

May 2022 – Sep 2022

- Environmental Monitoring describes the processes and activities that need to take place to characterize and monitor the quality of the environment. Environmental monitoring is used in the preparation of environmental impact assessments, as well as in many circumstances in which human activities carry a risk of harmful effects on the natural environment.

**Steganography**

Aug 2022 – Sep 2022

- Steganography is the art of hiding the fact that communication is taking place, by hiding information in other information. Many carrier file formats can be used, but digital images are the most popular because of their frequency on the internet.

CERTIFICATIONS

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PG diploma in Embedded systems and IoT ISM University	28 Oct 2022
Embedded C ISM University	15 Aug 2022
Linux modules ISM University	10 Sep 2022

SKILLS

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C/C++	Embedded C
Python	Data Structures
Linux	Microcontroller
Embedded Protocols	Git
SDLC	Automotive embedded
Linux Device drivers	RTOS
KiCAD	