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Professional Summary

- **8 years** of work experience in **Embedded engineer & IoT domain**
- **3 years** of work experience in **WIFI,BLE**
- **2 years** experience in **PCB development**
- Started career as a student project maker and self taught myself to become an Embedded software professional
- Self starter & Individual contributor who ramps up projects
- Acted as an interface between cloud, mobile app developers (who find it hard to understand **bits, bytes, BLE, raw TCP**) and embedded software engineers
- Fast and flexible enough to learn any technology

Work Experience

Company Name	Designation	Timeline
Boodskap Labs Private Limited	IoT application developer (C++)	**Sep 2021** - **present**
SD Pro Engineering Solutions Private Limited, Trichy	Embedded Application Developer (C)	**Feb 2016** - **Aug 2021**

Technical Skills

Languages	C, C++ , Python
Designing Tools	Easy EDA, KiCAD, Proteus ISIS simulator
Software tools	Arduino IDE, Python IDLE, VS Code, Platform IO
Hardware	NRF52,ESP32, ESP8266, Raspberry Pi 3, Orange Pi, STM32F103C8T6, EC25 4G module, GSM, GPS L80
Protocols	BLE, Zigbee, TCP, UDP, MQTT, HTTP, TCP

Projects

ESP32 IoT Router

- **Hardware** : ESP32
- **Software** : PlatformIO
- **Language** : C++, HTML, CSS, JavaScript
- **Protocols** : MQTT, HTTP

ESP32 IoT Router is a generic configurable device that can connect to the Boodskap cloud platform (or any other). Through the WebUI, one can configure the device to

- Control GPIO and read button states
- Read Analog pin at configured rate
- Interface with I2C, SPI sensors
- Act as bridge device for non IoT hardware
    - like UART based GPS receiver, pressure sensor
    - Bluetooth only devices

I was responsible for making the concept, initiating and developing the project. I wrote the frontend HTML & Javascript, embedded web server firmware in C++.

Aggregating health parameters from a BLE device made by VitalProbe Inc.

- **Hardware** : Raspberry Pi Zero, ESP32
- **Software** : Platform IO
- **Language** : C++, Python
- **Protocols** : MQTT, HTTP

We got a health monitoring device from **VitalProbe Inc.** and it is capable of reporting various parameters Heart rate, Body temperature, ECG, etc., via BLE. We were tasked with designing a BLE central device that can collect data from multiple devices via BLE and send it to the Boodskap cloud platform.

BLE device reported various parameters via Custom BLE characteristics. The data format and configuration of data rate was documented in the device datasheet. The solution was implemented with both Raspberry Pi Zero (Python) & ESP32(C++). Both were able to forward data from BLE and send it to the cloud.

The merits & demerits of the approach were studied. ESP32 was cost effective but suffered when there was network outage while Raspberry Pi can buffer data and send when network comes up again.

Vehicle tracking (JT808 based) on Boodskap platform

- **Hardware** : 4G GPS Tracker
- **Software** : Python IDE
- **Language** : Python

- **Protocols** : TCP,HTTP

Many vehicle trackers support the JT808 protocol (works over TCP). I was tasked with understanding binary JT808 protocol and building code that can be integrated on Boodskap cloud server. I successfully wrote the JT808 implementation in Python by following the Chinese documentation and handed it over to the cloud team.

Real Time Vehicle Tracking System

- **Hardware :** Orange Pi 3, Webcam, EC25(4G module), L80 GPS
- **Software :** Python 3
- **Language :** Python, OpenCV.

The project is a comprehensive vehicle tracking and monitoring system designed around the Orange Pi, L80 GPS module, EC25 4G module, a webcam, and Orange3. It operates by first obtaining precise GPS location data using the L80 module, which is then relayed to the Orange Pi. The Orange Pi processes this data, splitting it into latitude and longitude, and utilizes the EC25 module to transmit this information to a remote server via HTTP, all through AT commands. In cases where network connectivity issues arise, a safeguard is in place: the GPS data is temporarily stored as a text file in the internal memory. Once network connectivity is restored, the system ensures that the stored data is promptly pushed to the server. Additionally, the project includes a monitoring aspect, as the webcam captures video at 20-second intervals, with these recordings being sent to an FTP server for remote monitoring purposes.

WiFi Smart Plug

- **Hardware :** ESP8266, Relay
- **Software :** Visual Studio Code, PlatformIO
- **Language :** C++,MQTT

This project involved the development of a smart and connected electrical plug utilizing cutting-edge hardware and software technologies. Key components of this project included the ESP32 microcontroller and a relay for controlling electrical devices. The software development and coding were executed using the Visual Studio Code platform with PlatformIO support, primarily in the C++ programming language.The primary objective of the project was to create a WiFi-enabled smart plug that could be remotely controlled and monitored through a network connection. Users could seamlessly manage power to connected devices, such as lights, appliances, or any electrical equipment, via a mobile app or a web interface.

Academic Qualification

Year	College	Qualification	Percentage
2015	Arasu Engineering College, Kumbakonam	B.E ECE	59.65
2011	Kalaimagal Matriculation Higher Secondary School, Sembanarkoil	Higher Secondary (Tamil Medium)	66.83
2009	DBTR National Higher Secondary School	S.S.L.C (Tamil Medium)	83.2

Personal Details

Father's Name **:** Mr. K. Manimaran

Mother's Name **:** M.Ushadevi

Date of Birth **:** 6th September 1994

Age **:** 29

Gender **:** Male

Marital Status : Married

Languages Known **:** English, Tamil

Permanent Address **:** 2/58, Udhayasuriyan Street**,** Arupathy (P.O),Tharangambadi (T.K), Nagapattinam (D.T).TamilNadu. 609309

DECLARATION

I hereby declare that all the information furnished above is true to the best of my knowledge and belief**.**

Date: **[SANJEEVIMARAN M]**

Place: