RAJESH KUMBHAKAR

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Skills

- Embedded Systems 80%
- Linux 80%
- RTOS 60%
- FreeRTOS 80%
- Yocto 20%
- Linux Device Drivers 20%
- GIT 80%
- Embedded C 80%
- Peripheral Drivers 80%

OBJECTIVE

Rajesh is a self-taught embedded software engineer, having hands-on experience on multiple platforms especially on Espressif, STM32, NRF Microcontrollers. He has demonstrated experience in embedded GUI development & implementation, having very good debugging, system analysis, and code management experience with industry-leading tools and platforms Although he works in the area of embedded software, his views are always around the end-to-end product development cycle including system design. He is very much interested in consumer electronics, and developing firmware that runs on embedded devices designed for consumers. He also has knowledge and experience in Embedded Linux (Yocto) and Linux kernel development. He is a long-time believer and contributor to opensource community works and contributed to many opensource projects. He is also known for his time-bound, effective and innovative ideas among his connections.

STM32 80%

ESP32 80%

ESP-IDF 80%

LVGL 80%

Embedded Filesystems (LittleFS, SPIFFS) 60%

DVP/SCCB 60%

USB 20%

Linux Kernel 40%

JTAG 60%

Segger SystemView 60%

Open source project development & management 80%

Hardware Evaluation 60%

Debugging proficiency 80%

Data structures 40%

Achievements & Awards

Winner (TOP-60) : IICDC-2019

Languages

EXPERIENCE

DATOMS | Pheonix Robotics Pvt. Ltd. 08/2021 - Current

Embedded Systems Engineer - Intern

- Working on embedded software stack on multiple projects.
- Responsible for complete embedded GUI development and implementation.
- Responsible for porting/developing drivers of various sensors/devices for ESP-IDF.
- Responsible for complete ISO7168 standard packet internface and generation, including AES256 encryption & Compression.
- Responsible for code improvements & bug fixing in existing code base.

Episodic Labs Pvt. Ltd. Sept 2020 - Apr 2021

Firmware Engineer

Consumer Electronics.

- Work-from-home.
- Worked on Camera-based applications based on FreeRTOS in ARM and ESP32 MCUs and technologies including DCMI, SCCB, DVP, etc.
- Responsible to identify potential requirements & supported technologies for the product.
- Responsible for Cost, Power & Memory analysis of the system.
- Responsible for Embedded System & Firmware design, development and debugging.
- Worked on the early development of BEMRR- A smart video analysis device, for sports.
- Responsible for design and platform identification.

EDUCATION

St. Xavier's Inter College 2017

Intermediate in Science

69.4%

KIIT Deemed To Be University 2022

B.Tech in Electronics & Telecommunications

8.10 CGPA (6th Semester)

Hindi

English

Bengali

Interests

Consumer Electronics

Opensource

Linux kernel

Embedded systems

RISC-V

PROJECTS

Portable Digital Camera (02/2021 - Present)

A consumer ready, proof-of-concept Digital Camera based on STM32F7 MCU & OB5640AF CMOS Camera

Health Fit Smartwatch

Worked on full stack Firmware development & system design of the Smartwatch, part of an E-Health Monitoring System for IICDC-2019.

E-Health Monitoring System (11/2019 - Present)

Winner (TOP-60) of the ongoing Indian Innovation Challenge and Design Competition 2019 by DST & Texas Instruments. A low-cost IoT based Health monitoring system aimed to reduce the gaps and increase the medical facilities anytime anywhere.

WearIn - Wearables for India (08/2020 - 01/2021):

Wearables, based on RISC-V based SHAKTI and VEGA processors

Smart IoT Camera Node (09/2020 - 04/2021)

A smart camera system which can keep track of a user and it's activities.

Minimal STM32F446RETx MCU HAL & Driver Libraries(05/2020 - Present)

HAL & Driver Package form scratch for STM32F446RETx Microcontroller. Drivers for: GPIO, I2C, SPI, UART, RCC etc.

PUBLICATIONS

Author: Pratik Ghosh, Sourav Das, Rajesh Kumbhakar, Rohit Yadav, Shubham Saxena, Roushan Kumar and Nirmal Kumar Rout - An E-Health Monitoring System

Electronic devices, circuits and systems for biomedical applications 1st edition. 2021.