ABIN ROY

CAREER OBJECTIVE

A hard-working **Embedded Engineer** with the ability to adapt quickly to change and around **4 years of relevant experience** seeking a challenging career.

WORK EXPERIENCE

- **Embedded Engineer at Velox Innovations from 26-02-2020 to present**
  - Programming and system design for MCU.
  - Handled multiple aspects of software development process such as requirements specification, implementation and integration, and testing and validation.
  - PRS Documentation.
  - Interfaced various sensor modules with MCUs.
  - Model-Based Development.
  - Handled various communication protocols like UART, SPI, I2C, Modbus and CAN.
  - Developed various systems with standard input and output interfaces like keypad and LCD modules.
  - Board bring up, testing and debugging.

- **Assistant Professor in Jyothi Engineering College, Cheruthuruthy, Thrissur, Kerala from 17-07-2017 to 11-05-2018.**
  - Planned and conducted lectures.
  - Performance analysis.

- **Assistant Professor in Jyothi Engineering College, Cheruthuruthy, Thrissur, Kerala from 11-07-2016 to 10-07-2017.**
  - Planned and conducted lectures.
  - Performance analysis.

RELEVANT SKILL SETS

- C Programming
- Complex algorithm development
- Moderate skill in C++ programming
- Proficient knowledge in embedded system development principles from a hardware and software perspective
- Communication protocols - UART, SPI, I2C, Modbus and CAN
- Interfacing storage devices like MicroSD card, etc
- PWM, Timers and Counters
- GSM Communication
- Knowledge in ADC operation
- Model-Based Development using MATLAB and Simulink

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EDUCATION

- M.Tech in Power Electronics and Drives from SRM University with 8.33 CGPA
- B.Tech in Electrical and Electronics Engineering from the University of Calicut
- Indian School Certificate (ISC)
- Indian Certificate for Secondary Education (ICSE)

STRENGTHS

- Hard working
- Punctuality
- Patience
- Quick learner
- Good team player
- Excellent communication skill
- Adaptability

- MATLAB tools - Model Advisor, Embedded Coder, Requirements Manager, Simulink Test, etc
- Model-Based Development using Stateflow
- Interfacing of various analog and digital sensors and actuators
- Ethernet, OSI Model and TCP/IP networking standards
- Familiarized with common microprocessor architectures
- Configuration tools and IDEs - STM32CubeIDE, MPLAB X IDE, Arduino, Dev-C++
- Debugging tools - ST-LINK, PICKIT 2, PICKIT 3, Simply Modbus master/slave, Logic Analyzer, XCTU, etc.
- Analyze schematic diagrams
- Problem solving and troubleshooting
- Quick prototyping and POCs
- RTOS
- Project Management Tool - Jira

PROJECTS

- **VXA-PS3200**

  The product is a robust buck converter with a PI controller-based output voltage control, a fault detection and protection system. The device communicates with a supervisory system via serial communication. The supervisory system sends the operating mode and the setpoint of the output voltage. The device sends the information about its mode status, fault conditions, input voltage/current, temperature and output voltage/current to the supervisory system. The device is developed with ARM controller. It consists of voltage sensors, current sensors and thermistor. Model-based design with MATLAB is used for the development of the product.

  Environment: C, STM32F103C8, STM32CubeIDE 1.11.0, ST-LINK, XCTU, MATLAB

  My Role:

  MIL & SIL Testing
  Interact with hardware team
  Testing & Debugging

- **T-SCANNER**

  T-Scanner is a fast, accurate and reliable mobile tower information extraction device which is used by the cyber security experts. The device is developed with ARM controller and consists of a thermal printer, MicroSD card slot and LCD. Suitable AT commands are used to extract the required information.

  Environment: C, STM32F103C8, STM32CubeIDE 1.11.0, ST-LINK, XCTU

  My Role:

  PRS Documentation
  Design & Development of algorithm
  Firmware development
  Interact with hardware team
  Support in board bring up
  Testing & Debugging

- **VX-ER10X**

  The ethernet multi-channel relay module allows control of electrical devices remotely through Ethernet using TELNET interface or Web interface.

  Environment: C, STM32FXX/ESP8266

  My Role:

  Firmware development

- **ENERGY TRACKER**

  The device is used to send the parameter values to the monitoring mobile application. The 32-bit hexadecimal float value is obtained from the corresponding register by sending a query to the energy meter over Modbus. The 32-bit hexadecimal float value is then converted to its decimal value and is send to mobile application from where it can be monitored.

  Environment: C, ESP-WROOM-32

  My Role:

  Firmware development

- **DECARBONIZER**

  The Decarbonizer is used to remove the carbon deposit from various parts of the diesel engine. It consists of a control unit and a sensor unit. A pressure sensor (MPX5999D) is attached to the gas injection unit. An IR sensor (IR1011) assembly at the exhaust of the vehicle is used to determine the smoke level. The current to be supplied to the gas injection unit is determined by the service station and the control unit ensures that constant current. PZEM-004T AC communication module is used for measuring the current.

  Environment: C, MICROCHIP PIC16XX., MPLAB X IDE

  My Role:

  Firmware development

  Interact with hardware team

REFERENCE

- Hasna V K,
  HRM,
  Velox Innovations.
  Email: info@veloxinnos.com