ANKIT KUMAR NATH

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OBJECTIVE

Result-oriented engineer with fast learning attitude and experience in analysis development testing and implementation of different industrial systems. Adept at developing and building applications with usability and high performance in mind.

WORK Experience

Research Engineer, April 2019 – November 2019
Aalto University – Helsinki, Finland
My key responsibilities included:

- Implementing and testing SPI communication protocol between two Texas Instruments MSP430 microcontroller boards establishing master-slave communication and displaying the message through serial port of slave by connecting with PC.
- Implement embedded software using C, debugging using Hardware debugger and troubleshooting technical challenges
- Developing, testing and debugging a python based test script to automate the thermal testing of Raspberry Pi camera in order to comply with the standards of space environment.
- Developing functional testing procedures and thermal testing of different subsystems of the satellite.
- Development and data processing of AMR magnetometer for FORESAIL 1 and 2 mission (Finnish National Space Mission)
- Quality Assurance of test setups and testing procedures of different satellite subsystems.
- Developing modular functions for magnetotorquer using MATLAB to correlate and implement IGRF and NED coordinates based on different models.

Training & Internships

Post Graduate Diploma in IoT and Embedded Systems
Cranes Varsity – Bangalore, India
Post-Graduate Intern, December 2019 – May 2019
I am undergoing an internship and training at Cranes Varsity in the following modules :

- Programming C, C++, Advance C & Data Structures
- ARM7 Architecture, Embedded Protocols – UART, SPI, I2C, CORTEX-M Architecture
- Linux Commands, device driver, Shell Scripting & System Programming
- Embedded Testing , FreeRTOS
- Machine Learning using Python
- Automotive with CAN Analysis & AUTOSAR
- IoT Edge Node Design & Development
- IoT Advanced – Raspberry Pi as Gateway, Cloud
- IoT Security – Encryption Standards, Secure Communication
- Big Data , Cloud Computing, Neural Networks & Deep Learning

Development of a virtual pacemaker prototype called "REEN" that controls the pace of athletes real-time by projecting visual information
AUREEL – Barcelona, Spain
Electronics Intern, August 2017 – February 2018
A brief working summary and the responsibilities of the project is as follows:

- Analysis and implementation of electronics equipment on Arduino Uno board for the product "REEN", a virtual pacemaker that controls the pace of athletes real-time by projecting visual information.

- Testing, calibration and optimization of the performance and efficiency of the electronic equipment.
- Configured the IMU and GPS tracker of the device in order to connect it maximum satellite connections in order to establish Precise Positioning method of GPS.
- Business development , promoting development of the company by procuring funds, establishing cooperation with companies and applying for grants.

Research and Development of a UAV project "Dronelimpio" to facilitate the use of UAVs for cleaning warehouses and windows

HEMAV- Barcelona, Spain

R&D Intern, March – July, 2017

Major Duties included:

- Development and implementation of electronic equipments in a UAV for a specific project called "Dronelimpio"
- Integration of the different payloads, camera, gimbal, lidar, sensors (proximity , gauge , pressure), water tank, sprinkling system, autopilot, air blower (different Horsepower for 3 prototypes) and battery / cable (depending on type of operation).
- Three prototypes were developed, depending on autonomous navigation, manual navigation, power budget, power consumption, time duration, proximity, water pressure and attitude of operation.
- Engineered solutions to experimental problems for optimizing the flight time of the UAV for different payloads and different conditions.

Taneja Aerospace & Aviation Ltd – Bangalore, Karnataka

Summer Trainee – Airport & Aircraft Electrical Systems, June, 2015

Major Duties included:

- Understanding the different avionics and their functionalities in an aircraft.
- Detailed analogy of airport electrical systems and traffic signaling system
- Operation of the control room and different allied instrumentation
- Visit to the workshop and hanger of the aerodrome
- Understanding the electrical power distribution of the hanger and power control station.

SKILLS

Core Skills in Embedded Systems:

- Python, C, C++
- Communication protocols – SPI, I2C,Serial, CAN
- Experience in programming ARM based microcontrollers such as TI MSP430, STM32
- Knowledge of calloc, malloc, dynamic memory allocation, Interrupt service routine (ISR), Interrupt Handling, TCP/IP
- Familiarity with oscilloscopes, HW debugger

Simulation Tools:

- MATLAB (Mathematics, Control System Toolbox)
- Eclipse
- MultiSIM
- Verilog (using Xilinx ISE 8.1i & Icarus Verilog)
- LabView

General Purpose Languages/Technologies:

- LINUX (Ubuntu)
- Microsoft Windows 10
- Shell Scripting, Device Driver
- Batch Programming & Command Prompt

Others:

- Microsoft Professionals – Word, Power Point, Excel
- Courses - Embedded Linux

EDUCATION

M.S – Aerospace Engineering, 2016 – 2018

Universitat Politecnica Catalunya BarcelonaTech – Barcelona, Spain

D.G.P.A.: 7.44

Masters thesis : *"Design of a Tunnel Magnetoresistance (TMR) Magnetometer for LISA mission"*

B. Tech: Electrical and Electronics Engineering, 2012 – 2016

Neotia Institute of technology Management & Science – Kolkata, West Bengal

D.G.P.A.: 7.22

Bachelors thesis : *"Different control systems implemented on FPGA (Temperature Controller)"*

Projects

- Creating Web-maps using python and folium, Interactive Dictionary using Python & Json.
- Interfacing I2C air pressure sensor BMP180 with Raspberry Pi
- HEMT Preamplifier for Remote Acoustic Sensing (RAS) satellite
- Efficient power amplifiers for 5G applications.