

## **RESUME**

### **ADARSH.B.U**

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### **OBJECTIVE:**

To work in a professional environment that will exercise fullest of my knowledge and give me ample opportunity to learn most of the evolving technologies and thus ensuring mutual growth.

### **QUALIFICATION:**

Completed M.Tech in Digital Communication Engineering from MSRIT, Bangalore in 2014 with CGPA of 9.19 and B.E in Electronics and Communication from B.I.E.T, Davangere.

### **SKILLS SUMMARY**

- Languages : C, Perl scripting, PHP
- DBMS Packages : MySQL, Antelope
- Development Platforms : Linux, Contiki, Tiny OS, OpenWSN, Windows family
- Network Analyzer : Wireshark, NAST
- Simulator : Cooja, NS2, Matlab
- Protocols : 6LoWPAN, RPL, CoAP, UDP, MQTT, TCP/IP, IPV4, IPV6. 802.15.4
- Micro Controller : ARM Cortex, MSP430, 8051
- Gateway platforms : C-DAC i-WASE, Panda Board, TP Link, Netgear
- Mote platforms : C-DAC i-WISE, TelosB, Iris

### **EXPERIENCE SUMMARY**

- Currently working on Smart Meters System based on IoT Platform as Project Intern at ERNET INDIA, since February 2014.
- Designed and implemented IoT based Smart Water Quality Monitoring and Actuation System.
- Designed and implemented IoT based Precision Agriculture with Automated Actuation System.
- Developed a design on Networking Pressure Sensors for Aerospace Application.
- Carried out number of mini projects based on ARM Cortex-M0 and MSP 430 microcontroller platforms.
- Managing data base of server for Wireless Sensor Networks.
- Simulation environment used was Cooja with the support of Contiki OS, NS2 and Matlab for WSN application designs.
- Assisted in teaching and tutorial for WSN lab and Communication lab, Dept of TCE, MSRIT, Bangalore.

## **CERTIFICATIONS:**

- Presented and published paper titled “CoAP Based Wireless Sensor Network Designed for Effluent Treatment of Water in Textile Industries” at National Conference on “Information Technology for Sustainable Future (NCITSF-14)” at JAIN University, Bangalore and IJERT journal.
- Published paper titled “Design of 6LoWPAN enabled Real Time Water Quality Monitoring System using CoAP” at Asia Pacific Advanced Network 38th meeting (APAN 38th), at Nantou, Taiwan.
- Project titled “6LoWPAN Enabled Automated System for Treatment of Effluent Water from Textile Industries Using WSN” was selected and funded by KSCST in the 37<sup>th</sup> series student project programme (SPP).
- Participated in the work shop on “Light Runner an Optical test Bench and Its Applications” organized and supported by MSRIT and IEEE Photonics Society and Fiber Optics Technology.
- Participated in the work shop on “Recent Advances in Computer and Communication Networks” organized and supported by MSRIT and IEEE Communication Society and IEEE Computer Society.
- Participated in the work shop on “NS2 (Network Simulator 2)” organized and supported by MSRIT.
- Participated in the work shop on “Innovate now! Intel Atom Innovation Kit” organized and supported by MSRIT and Intel India.
- Participated in Papyrus, the seminar on “Smart Card Technology” organized and supported by EC forum BIET, Davangere.

## **PROJECTS**

### ➤ **M.Tech Major Project**

**Title:** “6LoWPAN Enabled Automated System for Treatment of Effluent Water from Textile Industries using Wireless Sensor Network (2013-2014)”. Project carried out at MSRIT in collaboration with Education and Research Networks (ERNET) and IISc, Bangalore.

### **Description:**

- This is a R&D based project, which proposes a novel approach to address most of the problems. The proposed technique involves various steps like real time acquisition of data, transmission of data, collection and display of data and actuation technique for treatment of water.
- The acquired data from these sensors are communicated wirelessly to a remote base station and then interfaced to a network enabled host computer, where all the received real time data can be displayed using CoAP, HTTP or linux terminal.
- The real time data from the sensor can also be stored in a database and graphical represented to analyze the variation in water quality parameters.
- Rectification system is also designed and implemented which performs the required corrective action, when the values of parameters are not in the permissible range.
- The project also depicts the usage of Contiki OS, RPL, 6LoWPAN, CoAP and other protocols for building an application using wireless sensor network.
- GUI has been developed to give a pictorial representation of the variations in sensor data so that detailed analysis of the variations with respect to time can be studied.

**Software:** Contiki OS, Linux, 6LoWPAN, CoAP, Cooja Simulator, MySQL.

**Hardware:** Water quality monitoring sensors, WSN Motes (Telos), Base Station, Relay Circuit, Motor, Panda Board.

➤ **M.Tech Minor Project 1:**

**Title:** Implementation of Precision Agriculture using IPv6 enabled Wireless Sensor Network.

**Description:**

- In this project, the concept of WSN has been applied to precision agriculture where soil parameters are measured in remote locations and are made available to the farmers via internet.
- This allows the farmers to analyze the parameters and determine the condition of the soil and initiate steps if necessary.
- IEEE 802.15.4 LoWPAN defines the physical and MAC layers whereas the IETF 6LoWPAN specifies the adaptation layer of the IPv6 protocol to the LoWPAN networks.
- At the application layer, CoAP has been used. The real time data can be acquired by using the Copper Plug-in in the Mozilla Firefox web browser.
- This project aims to help the agriculturists to embrace technology to minimize and optimize their experience of farming.

**Software:** Tiny OS, Linux, 6LoWPAN, CoAP, Cooja Simulator, MySQL.

**Hardware:** Soil sensors, WSN Motes.

➤ **M.Tech Minor Project 2:**

**Title:** Phytomonitoring System for Plant Growth using Microcontroller and Sensor Based Network

**Description:**

- In this system, parameters such as soil moisture, soil temperate, leaf temperature, fruit growth, steam growth, wind speed, air humidity are measured and transmitted using plant specific sensors and wireless technology.
- Based on parameters, decision was taken and corrective measure was performed.
- The system was made fully automated by controlling motor action through the microcontroller, to perform the rectification.
- Implementation of Phytomonitoring system leads to development of precision water-saving irrigation system, which helps in better growth of crop and better yield.

**Software:** IAR Embedded workbench for MSP430.

**Hardware:** MSP430 Microcontroller, LCD Display, RF Transceiver Unit, Soil Sensors, Relay, BC548 transistor, DC motor, FET debugger, USB cable, Serial cable.

➤ **M.Tech Minor Project 3:**

**Title:** Networking Pressure Sensors for Aerospace Application.

**Description:**

- The aim of project is to build an automation system that continuously monitors and controls the sealed vessel or steam boiler parameters
- The boiler is filled with water and heated up. Temperature sensor reads the temperature of water and steam, MEMS pressure sensor reads the steam pressure inside the steam boiler, MSP430 microcontroller takes the data from these sensors and continuously displays it on LCD display.
- The MSP430 microcontroller keeps track of sensor outputs and compares with the set points. If the pressure and temperature reaches the above set point the electric heater coil is controlled by MSP430 Controller with the Triac AC controller and opto coupler Triac Driver.
- If pressure exceeds burst pressure the safety steam solenoid valve outlet is opened to avoid burst of steam boiler due to excess pressure and temperature.
- Thus safe and stable automation control system for the power plant is developed by this project.

**Software:** IAR Embedded workbench for MSP430.

**Hardware:** MSP430 board, Pressure Sensor, LM324 operational amplifier, FET debugger, USB cable, Serial cable.

➤ **B.E Project:**

**Title:** “GPS Based Time Synchronization with Master Clock of 1ms Accuracy” (2011-2012). Project carried out at B.I.E.T, Davangere.

**Description:**

- Monitoring the satellite time and displaying with 1ms accuracy is the aim of this project.
- In many timing applications, such as emergency dispatch, time / frequency standards, site synchronization systems and event measurement /tagging systems, GPS receivers are replacing older timing technologies.
- The GPS constellation consists of 24 orbiting satellites. Each GPS satellite contains a highly-stable atomic (cesium) clock, which is continuously monitored and corrected by the GPS control segment.

**Hardware:** Microcontroller P89V51RD2, GPS module, RS 232 Converter, Ultrasonic sensor.

**SOFT SKILLS:**

- Good analysing ability, Listening capability, Optimistic & Quick Learning ability
- Co-operative, flexible, hard working, honesty and sincerity

**COURSE WORK**

- Advanced Communication Networks
- Wireless Sensor Networks
- Digital Signal Processing
- Real Time Embedded systems
- Digital Communication

**PERSONAL DETAILS:**

Father's name : Umesh.B.C  
Mother's name : Bharthi.B.H  
Date of Birth : 18<sup>th</sup> February 1991  
Gender : Male  
Nationality : Indian  
Hobbies : Making New Friends, Travelling, Cooking, Listening to music.  
Languages known : English, Kannada, Hindi

**DECLARATION:**

I hereby declare that the above mentioned information is true to the best of my knowledge.

**Date:**

**Place:**

**ADARSH.B.U**