S ALOKA PATRO

Personal Data

Date of Birth:	04th July 1993
Address:	Polasara, Odisha (761105)
Phone:	8847834048, 9556443222
email:	alokapatro999@gmail.com

Technical Skills

Hardware skills:	IoT based system design, WSN architecture design and development,
Design skills:	PCB schematic design, layout design (Using **EAGLE**)
Software skills:	Web service development and database management.
General Programming:	C, Embedded C, C++, JavaScript, Python
Compiler:	Keil, Dev-C++ (gcc)
Microcontrollers and SBCs:	AVR microcontrollers, Arduino boards, Raspbeery pi zero to 4 model B, ESP12E, ESP12F, ESP32 boards
Web Server:	Python, Node-RED.
Databases:	MongoDB, MariaDB (SQL)

Industrial Projects

IoT based System for Compressed Air Consumption Monitoring in Aluminum Smelter Plant (NALCO, Angul)

Description:

- Design development of IoT based devices with Remote Monitoring Server and Dashboard based User Interface for online monitoring of compressed air consumption, Temperature and flow inside air headers.
- The system is designed with on-board signal acquisition and conditioning circuits with **AVR** based **micro controller** board. The device is equipped with over current and over voltage protection and local storage.
- The web services were developed using **JavaScript**, **HTML** on **Node-RED**.
- The overall system used protocols e.g. **TCP, MQTT, HTTP and TCP/IP**.
- The database engine used was **MongoDB**.

Heavy Vehicle Monitoring system for Open Cast Mines Under Unreliable Cellular Network (Tensa Mines, JSPL, Odisha)

Description:

- Design and Development **IoT** enabled devices that included communication using **cellular** and **ZigBee** based **mesh network** for Real-time tracking of heavy vehicles inside open cast mines. The device is designed for communicating location and speed information of the vehicle through cellular network to the remote server for storage and monitoring.
- A **ZigBee** based network of routers and coordinator is setup for passing of information to the switch over module on a **Raspberry Pi** single board computer for communication between cellular and ZigBee while inside open cast mines under no cellular coverage.
- Development of web services were done using **Python (CherryPy**, object-oriented web application framework), **JavaScript** and **HTML5**.
- The database engine used was **SQL**.

Work Experience

Worked as a project engineer in NIT Rourkela, Odisha from Nov 2016-Mar 2019

Experiences:

- Was involved in PCB schematic design, layout design (Using **EAGLE**) for both PTH and SMT based designs (2 layers), Thermal analysis using PCB Investigator.
- Worked on intra system communication protocols e.g. SPI, I2C and inter system communication protocols like UART etc.
- Worked on wireless communication protocols e.g. Wi-Fi, ZigBee and cellular (GSM and 4G).
- Worked on application layer protocols e.g. HTTP (Client-server communication) and MQTT for secure M2M communication in IoT based systems.

Extra Curricular Activities

Robotics	*Core Member(Hardware and software), Robotics Society, B-Tech* Worked as an active member, designed circuits and developed software, and introduced pneumatic technology to the club.

Scholarships and Certificates

March 2014	National Robotic Contest (**ABU-ROBOCON, Pune**), founded by Asia-Pacific Broadcasting Union (ABU)
July 2005	National Rural Talent Search (**NRTS**)

Education

July 2019	M.Tech (By Research) , **National Institute Of Technology, Rourkela.** Major: VLSI and Embedded System Design GPA: 9.36/10
June 2016	Graduation , **Veer Surendra Sai University of Technology, Burla.** GPA: 7.21/10
June 2011	Diploma , **Uma Charan Pattnaik Engineering School, Berhampur.** Percentage: 78.29
June 2008	Matriculation , **Chirikipada Sasan High School, Chirikipada Sasan.** Percentage: 85.25

Interests and Activities

Astronomy