**Aalok Kant­­**

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**Summary**

Highly experienced Embedded and Instrumentation engineer with a wide exposure to various electronics technology as well as in end-to-end product development life cycle. Adept at working independently with little to no supervision or as part of a professional engineering team

**Skills**

**Microcontrollers**

* 8051, Arduino, ARM7, Raspberry Pi

**Software**

* MCU IDE: Keil-8051, Keil - ARM 7, Arduino IDE
* Simulation: Tina Pro, Proteus
* LabVIEW
* Schematics: OrCAD, Eagle

**Programmable Logic Controllers**

* Fatek PLC FBs-20MA,

**Circuit Designing**

* Analog / Digital Circuit Designing & Simulation
* Schematic Designing & Layout Verification
* Hardware Testing and debugging
* Embedded design and Development
* Op-Amps and its applications

**Programming**

* Embedded C
* Python

**Communication Protocols**

* I2C, SPI, UART, RS232, USB
* Python

**Internet of Things (IoT)**

* AWS-IoT, Blynk Platform

**Instrumentation**

* PID Controller
* Sensors and Transducers
* Control System

**Lab Equipment’s**

* DSO: Digital Storage Oscilloscope
* CRO: Cathode Ray Oscilloscope
* Digital Multimeter
* Logic Analyzer

**Managerial**

* Strategic Planning
* Monitoring Procurements
* Monitoring Timelines

**Design**

* Product Conceptualization
* Problem Analysis & Solving
* Design Optimization

**Experience**

**Sr. Electronics Design Engineer (June2019-Present)**

**GE Appliances: First Build, Hyderabad, India**

* Provide support on product design issues and product improvement
* Support electronic module upgrade, debug, optimization, cost reduction, quality improvement in product lifecycle management
* Contributes to research, technology development and program execution to generate new and/or improved products
* Supported firmware, PCB, and design modifications of products
* Research and evaluate new technologies and tools
* Conducted circuit board design tests for hardware and software
* Providing direction to the junior engineers in performing regulatory tests for electronic tool and devices

**Sr. Electronics Engineer (Aug2018-May2019)**

**Acufore India Pvt. Ltd., Bangalore, India**

* Designing High Speed Board using Renesas S7 Series Controller
* Designing circuit to interface an SDRAM
* Designed displays and circuits for low power, battery operated units
* Managed projects, timelines, costs, specifications and documentation
* Provided existing product support and assisted developers and engineers in new product design
* Assessed and recommended hardware system enhancements
* Responsible for board bring-up

**Research & Development Engineer (R&D) (May 2016 – Aug2018)**

**Technido, Indore, India**

* Product Designing of several types of Electronic & Embedded products
* Hardware Testing and debugging on new and existing products and implementing appropriate changes
* Schematic Designing, Testing, and supervising the manufacturing process of electronic equipment
* Rapidly prototyping new capabilities to confirm feasibility
* Reducing manufacturing costs and functionality by updating existing product designs
* Designing embedded electronic hardware and embedded firmware for various applications
* Developing, testing and reviewing control systems and electronic products
* Responsible for complete SEO process and web analytics
* Digital Marketing and ecommerce store management

**Research & Development Engineer (R&D) (March 2008 – March 2016)**

**Scientech Technologies Pvt. Ltd., Indore, India**

* Determine project responsibilities by identifying project phases and elements
* Determine project specifications by studying product design, customer requirements, and performance standards
* Performing research and gathering information regarding the development of the product
* Design, develop, code, test and debug embedded software solutions for a variety of platforms
* Embedded Hardware Designing & Firmware Development
* Modified existing software to correct errors upgrade interfaces and improve performance
* Participate in development projects to help teams choose the best embedded platform solution
* Developing and documenting technical guidelines for microcontroller and robotics
* Schematic Designing & Circuit Simulation
* Designed and development of various Analog and Digital Circuits
* Hardware Designing and Debugging
* Prepare product reports and ISO certification Files as per ISO 9001:2015

**Project Executed**

**Embedded System**

**Title : Smart Wine Chiller**

**Controller : Raspberry Pi**

**Role : Hardware/Firmware Developer**

**Description :** Smart Wine chiller is the ideal add-on for wine lovers to make their wine experience complete.

Increased the functionality of a normal wine chiller to make it smart. Wine bottles Position and inventory can be maintained using an app. Used the Bit addressable Neo Pixel LED’s to indicate the position of a wine bottle

**Title : ARM7 Development Board**

**Controller : 32 Bit ARM7 based Controller LPC2148**

**Role : Team Leader**

**Description :** This Microcontroller Development Board serves as 32-bit development platform and provides means

for firmware development. The controller used is LPC2148. Created codes to use controller’s internal features such as ADC, DAC, I2C, SPI, UART, PWM and interfaced it with various modules such as motor, sensor etc

**Title : ARM7 Development Board**

**Controller : 32 Bit ARM7 based controller LPC2294**

**Role : Hardware/Firmware Developer**

**Description :** This Microcontroller Development Board serves as 32-bit development platform and provides means

for firmware development. The controller used is LPC2294. Created codes to use controllers internal features such as ADC, DAC, I2C, SPI, Uart, PWM and also interfaced it with various modules such as motor, sensor etc

**Title : AT89C51/52 Development Board**

**Controller : 8 Bit Controller AT89C51/52**

**Role : Hardware/Firmware Developer**

**Description :** A development board used for programming and executing various programs of 8 bit 89C51/52

controller. The board can be interfaced with various modules such as motor, Sensor, keypad, LCD and many more

**Title : Agricultural Monitoring Board**

**Controller : Renesas S7 Series MCU S7G2**

**Role : Hardware Developer**

**Description :** This Microcontroller Board was developed to help the farmers to get a deep understanding of the

environmental factors affecting the growth of the crops. The device allows the user to track temperature, humidity, moisture content of the soil and light around the plant. System can alert the user if any condition falls out of optimal range, so the user can maximize the harvest yields.

**Instrumentation**

**Title : Integrated Sensor Lab**

**Role : Team Leader**

**Description :** Designed a complete integrated sensor system equipped with Light intensity sensor, Temperature

Sensor, Pressure Sensor, IR Sensor, Hall effect Sensor, Humidity Sensor, Water Level Capacitive Type Sensor, Ultrasonic Sensor and many more with effective operations of signal conditioning blocks.

**Title : Pressure Sensor Board**

**Role : Hardware Design Engineer**

**Description :** Designed a board that focusses on the study of Pressure Sensor (SX100DN). Board was also equipped

the necessary signal conditioning circuit required for the sensor to read the Pressure generated.

**Title : Strain Gauge Sensor Board**

**Role : Hardware Design Engineer**

**Description :** This Board gives the study of Strain Gauge and their application for measurement of displacement. It

helps to study bridge configuration of Strain Gauge and the signal conditioning circuits required to measure displacement. It uses cantilever beam arrangement to produce strain on Strain Gauge.

**Title : Temperature Sensor Board**

**Role : Team Leader**

**Description :** Temperature Transducer Board is designed to covers study of 4 different types Transducers i.e. LM35

Temperature Sensor, PT100 Resistive Temperature Detector(RTD), 4K7 Thermistor and K Type Thermocouple. Experiments covering fundamental characteristics of transducers & study of transducer controlled switching / alarm systems can be performed with this Board.

**IOT-Internet of Things**

**Title : IOT Internet of Things Kit**

**Controller : Arduino UNO**

**Platform : Thingspeak & Blynk**

**Role : Team Leader**

**Description :** Design, Create and develop an IOT device using an Arduino Microcontroller that can control the

physical world. Kit provides all the hardware and software you need to speed up prototyping and time to production and to create your own Internet of Things using Thingspeak and Blynk Platform

**PID Controller**

**Title : PID Controller Board**

**Role : Hardware Designer**

**Description :** Designed a board that provides comprehensive understanding of PID controller concepts with all

possible combinations (P, I, D, PI, PD, PID). Test signals such as step, ramp and parabolic signals provided on the front panel of the board.

**Title : Speed Control of DC Motor**

**Role : Team Leader**

**Description :** Designed a system that can control the speed of a DC motor using a PID controller.

**Title : Position Control of DC Motor**

**Role : Team Leader**

**Description :** Designed a system that can control the position of a DC motor using a PID controller.

**Programmable Logic Controller(PLC)**

**Title : PLC Development Board**

**PLC : Fatek PLC FBs-20MA**

**Role : Hardware/Firmware Developer**

**Description :** Designed a Fatek PLC FBs-20MA Development Board for learning the basic PLC Ladder Logic

programming. The Board was designed to make it convenient for interfacing with other modules.

**Title : Pneumatic Based Object Sorting platform using PLC**

**PLC : Fatek PLC FBs-20MA**

**Role : Hardware/Firmware Developer**

**Description :** This project required the need of pneumatic components such as solenoid valve, double acting

cylinders etc. and a Fatek PLC FBs-20MA to separate out different size objects. The objects are placed on a conveyor belt and made to pass through IR Sensors where they are differentiated according to their sizes. After which the double acting cylinder pushes the objects into different containers as per their sizes.

**Control System**

**Title : Control System Lab**

**Role : Team Leader**

**Description :** Designed a Board that gives the full understanding of open loop and closed loop system. The board

focuses on 3 process i.e. Temperature control of a room, Light intensity control and speed control of a DC motor. It demonstrates the control of these processes in open loop and closed loop. This board can be interfaced with PC using a DAQ card.

**Title : Synchro Transmitter Receiver**

**Role : Team Leader**

**Description :** Synchro Transmitter Receiver Board helps the user to gain invaluable knowledge about the working

principal and operating of Synchro motors

**Data Acquisition Card**

**Title : DAQ Card**

**Role : Team Leader**

**Description :** It measures the real time value of any process and controls it using a software. It contains internal

signal conditioning circuit for inputs of sensor. It also contains internal Analog to Digital converter (ADC) circuit for the controller. The software displays the real time value of the process. It is a USB based DAQ card and the controller used is a 32 bit ARM7 Microcontroller LPC2148

**Robotics**

**Title : Robotic Arm**

**Role : Team Leader**

**Description :** Hardware Designed and firmware Development of ARM7 based Robotic arm having 5 degrees of

freedom. In depth study of various motors was involved in the creation of the Robotic Arm such as Servo motor, Stepper motor and DC motor

**Title : Pick & Place robot**

**Role : Team Leader**

**Description :** Hardware Designed and firmware Development ARM7 based Robotic arm having 6 degrees of

freedom. The robot demonstrates the picking and placing of an objects as done in industries. We used Servo motor, Stepper motor and DC motor for its creation.

**Education**

**Bachelors of Engineering (B.E) (2003-2007 Batch) :** Instrumentation & Control Engineering (Aggregate: 70.00%)

**References:** Available on Request

**Declaration:** I hereby declare that the information furnished above is true to the best of my knowledge.

**Aalok Kant**