Chirag Shah

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Career Objective

To obtain a niche position in the electronics industry where I can utilize my skill of combining hardware and software to help create a product for the organization

Education

2015 – 2019	Currently in the final year, Electronics Engineering Sardar Patel Institute of Technology	8.18 CGPA (Up to Sem 7)
2015	HSC - Maharashtra State Board PACE Junior Science College, Dadar	82.31%
2013	SSC - Maharashtra State Board St Xavier's High School, Fort	87.5%

Internships

eYantra Internship: Formation Control of Multiple Swarm Robots (22/May/2017 - 7/Jul/2017)
7 weeks residential internship at the Embedded and Real-Time Systems Lab under Dr Kavi Arya, IIT Bombay under the eYantra Summer Internship 2017 program

- The objective was to explore algorithms to control groups of robots and make different swarm formations
- Developed the embedded C program for the swarm robots (ATmega-16)

Fractal Analytics: Implementation of Room Occupancy System (11/Jun/2018 - 13/Jul/2018)
Implemented the system across 7 meeting rooms and 2 temperature sensors in the server room. Understood what it takes to implement a system in real life which is running 24x7 v/s building a prototype

- The devices are designed to be battery operated and consume very low standby current
- The devices connect via a network of RF trans-receivers
- Data is sent to AWS IOT core and then pulled into dynamo DB

Fractal Analytics: Hololens Experience (27/Nov/2017 to 5/Jan/2018)
We developed an application for the Microsoft Hololens. One can interact with the products kept on the holographic shelf and then see the resulting analysis in the form of 3D holographic pie charts, bar graphs, and heat maps. We developed 3 use cases in our application

- Share of Sight Analysis (which shelf/products receives the most attention)
- Share of Shelf and Share of Rack analysis (share of brand/products on the shelf)
- Compliance (are retailers complying with their agreements for product display with the manufacturers)

SPIT - 3 weeks summer training program on Embedded Systems Design held in June 2016

Projects / Achievements

e-Yantra Robotics Competition 2016: 1st Place
e-Yantra is an initiative to spread education in Embedded systems and Robotics by **IIT Bombay, sponsored by Ministry of Human Resource Development.** In eYRC 2016 **3,620 Students in 905 Teams** participated in the competition which was spread across 7 themes

- Secured **first place among 167 teams** that participated in "Launch a Module" theme
- Designed and built the robotic arms; programmed the Firebird-V robot using C (ATmega 2560)

Constant Current Load
You can dial in any current and the circuit will adjust itself to draw that much current from the supply regardless of the supply voltage. This can be used to test the ratings and specification of power sources

- This device uses a MOSFET and an op-amp to create a variable resistance load which will maintain a set current flowing through it
- The current, voltages, power dissipated are displayed on an onboard LCD using an ATmega microcontroller
- I conceptualized the device, designed the PCB and had it professionally manufactured
- This gave me an end to end experience of creating a complete and meaningful circuit on a PCB

DIY Time-lapse Dolly in the Raspberry Pi Contest 2016: 1st Prize
Instructables is a website specializing in user-created do-it-yourself projects

- Designed a setup for adding motion to a time-lapse photo sequence
- The Instructable can be viewed at www.instructables.com/id/DIY-Time-Lapse-Dolly-1/
- Conceptualized, built and wrote the Instructable for building the Time Lapse Dolly
- **First prize** (Top 4 prizes) out of 198 entries from around the world

3D Indoor mapping using ROS
We wanted to learn the ROS (Robot Operating System) framework. We were able to wirelessly create a 3D map of an environment using a Microsoft Kinect and a Raspberry Pi

Innovatron: 3rd Prize May 2018

- Inter College Mini Project competition organized by Electronics Department, SPIT
- Conceptualized, designed and developed a Room Occupancy system
- Implemented this project in Fractal Analytics

Troubleshooting Competition: 1st Prize 2017; 2nd Prize 2016

- This is an annual competition held by the Electronics Department, SPIT
- The task was to debug and rectify faults in simulation and hardware circuits

Technical Skills

- Embedded C programming (ATmega µCs, esp-8266, Arduino)
- Complete PCB designing and fabrication (power supplies, µC boards, constant current load PCB)
- Basic image processing using OpenCV and Python
- Game development in Unity and scripting in C#
- Basic FPGA programming Atlys Spartan-6 trainer board
- Raspberry Pi
- Software version control using GIT
- Basic knowledge about Robot Operating System (ROS)
- CAD and 3D Printing

Co-curricular activities

- Conducted a 2-day hands-on workshop on “Introduction to Microcontrollers, Sensors and Embedded C programming using Arduino”
- Designed and manufactured a custom PCB for conducting a 2-day hands-on workshop on “Introduction to PCB designing, Soldering, Embedded System board design and Embedded C programming”
- SP-Open Mini 2015 (speed-cubing competition) – in charge of volunteer training

Other Interests

- Certified PADI Advanced Open Water SCUBA diver
- Sailing and Wind Surfing
- Photography
- Rubik’s cube enthusiast