Darsh Shah

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Work Experience

Jun, 12 – Ongoing — **Qualcomm Inc, India**
Working as an Associate Engineer in field of Computer Vision. Developing APIs and test automation suite to test the FCV APIs on hardware.

Jan, 12 - May, 12 — **Playpower Labs, India**
Interned at a startup company in Gandhinagar as a game developer and designer. Made educational games in flash for school children. One of the games is hosted at http://goo.gl/q6wSM

Aug, 11 – Dec, 11 — **Research Assistant**, Embedded Systems & Sensor Networks Research Group, DA-IICT
Worked on Wireless Optical Sensor Network Design for a Conducting Chamber. Researched about methodologies to improve communication using Infrared. Made prototypes on custom PCB for the developed designs and did alpha testing in the lab.

Education

2008-12 — Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar (Gujarat, India)
B.Tech in Information and Communication Technology
CPI 8.83/10

2007-08 — St. Kabir High School, Ahmedabad (Gujarat)
Gujarat Secondary Education Board
87.00 % (aggregate)

2005-06 — St. Kabir High School, Ahmedabad (Gujarat)
Gujarat Secondary Education Board
89.86 % (aggregate)

Skills

Expertise Area — Embedded System, Wireless Sensor Networks, Digital System Architecture, Computer Networks.

Programming Language — C, C++, Verilog, Perl, Embedded C for AVR, SQL, Assembly language for 6502, Actionscript 3.0, NesC and Contiki (Beginner level)

Tools: Software — AVR Studio, WinAvr, Xilinx, Matlab, Logisim, Multisim, Labview, NS2, Eagle, Adobe Flash

Tools: Hardware — Spartan 3 FPGA, ATmega16/32, Basic Stamp2, Lego Mindstrom Nxt, Arduino, Raspberry Pi, STK500 and Fablab tools including Laser cutter, Shopbot and Modela

Technical Electives — Embedded System Programming, Digital System Architecture, Wireless Sensor Networks, Network Protocols, Robotics, Embedded Hardware Design, Digital Signal Processing, Digital Image Processing.

Internships

Rural Internship — **Hadoti Natural Society** — Dec, 09
Guide: Professor Ganesh Devy and Mr. Rakesh Vyas — Team Size – 4
We worked in rural areas of Kota district, visiting different villages and working on human – crocodile conflict and its amelioration measures.

Research Internship — **Playpower Foundation, Carnegie Mellon University, USA** — Feb,10 – Sep,10
Guide: Derek Lamos(CMU), Prof. Mathew Kam(CMU) — Team Size – 12
I coded for 6502 processor which was used in the video games. We made 3 games and were tested in Ahmedabad, Bengaluru and Mumbai.

Research Internship — **Wireless Optical Sensor Network Design for a Conducting Chamber** — May,11–July,11
Team Size – 2
Guide: Prof. Prabhat Ranjan
Sensor Network Testbed for Tokamak Environment using IR instead of RF for Nuclear Reactor. It is supported by National Fusion Program, Board of Research in Fusion Science. I continued as a RA on this project from Aug,11

Publications

"Improved Speed IR Communication based Sensor Network for Tokamak In-Vessel Monitoring" - **Darsh Shah**, Vedang Patel, Abhishek Borkar and Prabhat Ranjan to 26th National Symposium on Plasma Science & Technology (PLASMA-2011), December 20-23, 2011,Patna, India.

"Play Exemplars from Playpower.org" - Derek Lomas, Kishan Patel, Dheeraj Medikonda, **Darsh Shah**, Yash Soni, Anshul Pahwa, Dixie Ching at International Academic Conference on Meaningful play, October 21-23, 2010, Michigan State University, East Lansing, Michigan, USA.

Patent

Applied for patent at Patent and Trademark office, Mumbai for an invention titled "A Novel Standalone Printer Add-On Device and System". Application number: **2753/MUM/2011**.

Major Projects

FastCV — Jun, 12 - ongoing
Organisation - Qualcomm, Inc — Team Size – 1
Working on a Computer Vision library called FastCV. The SDK can be downloaded from http://bit.ly/Qi4X1S. I am working on making test APIs for this library and also making an automation suite using Perl to test these APIs on different targets. I am doing memory testing, Bullseye testing, API fuzzing as a part of the testing effort.

smarT: A smart and interactive t-shirt for specially abled people — Mar, 12
Guide: Nanwei Gong and Nan Zhao, MIT Media Lab, MA, USA — Team Size – 4
Made a prototype of a t-shirt which has a LED panel in front for displaying information on the shirt. The final idea is to read gestures using camera and display text on the LED panel.

OpticalCENSE: Making a Wireless Sensor Network for a Conducting Camber — Jan,11 – Dec,11
Guide: Prof. Prabhat Ranjan, DA-IICT — Team Size – 2
This funded project was started in Jan and I worked on it also during my Research Internship and became a Research Assistant for the same during the 7th sem. Designed the PCB, did unit testing of the components and alpha testing.

SeismicCENSE: Interfacing Zigbit with ADS1255 (24-bit ADC) — Feb,11 – Apr,11
Guide: Prof. Prabhat Ranjan, DA-IICT — Team Size - 2
The aim of this project was to interface Zigbit with a high resolution Analog to Digital convertor to measure the seismic activity on Moon and relay the information to base station.

Computation of 4 Point DFT using Radix2 FFT Algorithm on FPGA — Oct,10 – Nov,10
Guide: Prof. Rahul Dubey, DA-IICT — Team Size-5

Implemented the FFT algorithm on the FPGA, taking the inputs from oscilloscope and giving output on LEDs. The butterfly algorithm was used and was coded in Verilog.

Load Balancing Transport Protocol for WSN Oct,11 – Nov,11
Guide: Prof. Sanjay Srivastava Team Size-2
Added data aggregation and load balancing into Dynamic Source Routing protocol and simulated it using NS2 software.

CONNECT2LEARN: An Interactive Virtual Classroom Jan,11 – Apr,11
Guide: Prof. Asim Banerjee, DA-IICT Team Size – 10
As a part of software engineering course, we are making a virtual classroom using Java. It is an open-source project. The virtual classroom project aims at connecting students to teachers via internet.

Automatic Mail Detecting Postbox Nov, 10
Guide: Prof. Anil Roy, DA-IICT and Prof. Anil Gupta, IIM-A Team Size-1
Made a Automatic Mail Detector Postbox for National Innovation Foundation and was displayed at Ignite 2010 awards held at IIM-A. The postbox detected any mail which was dropped in the box using IR sensors and intimated the user for the same.

KEYS2DOTS: Braille Printer Jan, 11
Guide: Ken Endo and Nadya Peek, MIT Media Labs, MA, USA Team Size-5
Made a working prototype of a printer which converted keyboard strokes into corresponding braille letter and prints them on paper. This project was done as a part of MIT-COEP Design Innovation Workshop 2011.

Positions of Responsibility

- **Research Assistant**, BRFST sponsored project in WSN Aug,11 – Dec,11
- Part-time **Teaching Assistant** for Embedded Hardware Design course. July, 11 – Aug,11
- **Secretary**, IEEE Student Branch, DA-IICT Feb,11 – Dec,11
- Publicity Manager, IEEE Student Branch, DA-IICT Mar,10 – Feb,11
- Event organizer of a One day workshop on Matlab Apr,10

Awards and Achievements

- Was selected for **MIT Media Lab**'s Design and Innovation Workshop which was held in Pune in 2011 and Delhi in 2012.
- Consolation prize for our design of Automatic Water Dispenser in Re-Kriti held during Synapse 2009.
- 2nd place in CEID Entrepreneurship contest held at DA-IICT in 2008.

Interests and Hobbies

Playing basketball and soccer. Learning new things, playing with gadgets and tinkering with hardware in my mini-lab. I write about things which I do and love @http://blog.darshshah.org/

Declaration: The above information is correct to the best of my knowledge.
Darsh Shah
Oct. 11, 2012