KARTIK KULGOD

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AREA OF INTEREST

My area of interest is Signal Processing and its applications

EDUCATION

Birla Institute of Technology & Science, Pilani - KK Birla Goa Campus
Bachelor of Engineering, Electrical and Electronics Engineering *August,2015 - Present*
CGPA: 8.95/10

City International School, Pune, India
High School *April 2015*
Overall performance: 96.80%

The Bishop's Co-Ed School, Pune, India
Primary School *March 2013*
Overall performance: 94.80%

RELEVANT COURSEWORK

Electrical and Electronics Engineering: Electrical Machines, Digital Design, Electronic Devices, Electromagnetic Theory-I, Electrical Sciences, Microprocessor & Interfacing, Microelectronic circuits, Control Systems, Signals and Systems, Communication Systems, Analog & Digital VLSI Design, Optimization, Digital Signal Processing, Data Communication Networks, Mobile Telecom Networks.

Interdisciplinary: Computer Programming, Multivariable Calculus, Linear Algebra, Ordinary Differential Equations, General Physics, General Chemistry, Thermodynamics.

PROJECTS

Hyperloop India
Electrical and Electronics engineer at Hyperloop India
Hyperloop India is a student body with the aim of bringing Hyperloop to India. We are the first team to have represented India and the only 2 from Asia, who had been selected to race our pod on a mile long track at the SpaceX headquarter located in Hawthorne, California during August 2017.

My various roles as an Electrical and Electronics engineer were:

1. Writing the software for a majority of sensors on the pod, as well as all the actuation systems and testing them.
2. Designing the PCB schematics on Eagle CAD.
3. Writing the software for the part of the State Machine involving the retro-reflective sensors.
4. Selection of the sensors for the pod.
5. Wiring of various components in the pod.

ABU Robocon

The objective was to deploy a robot that can throw polyurethane frisbees accurately at specified points.
My various roles as a member of the team were:

1. Writing software for controlling actuators and transmitting data among different microcontrollers using I^2C protocol.
2. Developing the 4 wheel differential drive base

Bug bots

Bug bots is a part of the larger idea of swarm robotics involving miniature bots moving on the basis of vibrations inspired from Harvard's Kilobot Project. Completed as a part of quark Summer Technical Project (2016).

Li-Fi

Built a simple circuit that could transmit a bit stream using a LED and Light Dependent Resistor, which included sinusoidal noise in the background.

hFE tester using 8086

Designed a system to calculate the beta value of a transistor under test, using Intel 8086 and other peripheral devices on Proteus. Completed as a part of course requirement for Microprocessor & Interfacing course

All Pass Filter Design using Current Feedback Op-Amps

Designed a first order all pass filter using a Current Feedback Operational Amplifier. Realised the circuit using 45 nm CMOS technology. Simulated the design on Cadence Virtuoso from frequency range of
1 uHz to 1 THz

†Brain Computer Interface using Signal Processing

(Projects marked with † before it, are in progress)

TECHNICAL SKILLS

Experienced : MATLAB, Arduino, C, Verilog, HTML5, CSS3, Assembly language (x86)

Familiar: Cadence Virtuoso, C++.

SCHOLASTIC ACHIEVEMENTS

- KVPY Scholar
- All India Rank of 1091 among 1.5 million students in JEE (Main)
- School Topper for National Science Olympiad, International Mathematics Olympiad, National Cyber Olympiad for several years

MENTORING & MANAGING EXPERIENCE

- **Teaching Assistant for the course Microprocessors and Interfacing**
- **Panel Coordinator** for the 'Electrify' during Quark 2018. Headed an entire panel of events related to Electrical engineering concepts, such as Embition, Arduino Open, Digilogica, Analog Tussle, Matmania and coordinating various activities.

- **Member of IEEE Student body** of BITS Pilani, Goa, which is primarily aimed to increase Technical Awareness in the campus.

- **Mentored students** through quark Summer Technical Project (2017) where participants were taught about **communication** using Arduino and Raspberry Pi Development boards.

- **Mentored students** on Introductory Electronics for Robotics as a part of Electronics and Robotics Club and Centre for Technical Education initiative which included a capstone project of building a **Micro Servo Robotic Arm**.

EXTRA CURRICULAR

- Sports: Plays Squash regularly.
- Music: Plays Guitar often.
- Participated in Arduino Open, Embition, Boolean Beatdown, Bullion Beatdown during Quark 2017, Department Week,2016 & Waves,2016, respectively.
- Maintains http://kartik-kulgod.github.io and an active github account.