Rahul Prajapat	10D070039	
Electrical Engineering	UG Second Year	
Indian Institute of Technology, Bombay	Male	
Specialization: Communication & Signal Processing	DOB: 15/9/1992	

Examination	University	Institute	Year	%
Intermediate/+2	CBSE	St. John's Senior Secondary School	2010	87.60
Matriculation	RBSE	Shri R. G. G. Sr. Sec. Adarsh Vidya Mandir	2008	90.00

OBJECTIVE

Seeking an internship to augment my engineering skills and to further my knowledge by gaining experience

RESEARCH INTERNSHIP

'ENVIROMOTE', WIRELESS POLLUTION MONITORING, BANGALORE   (Dec'2011)

Guide : Prof. Bharadwaj Amrutur, IISc Bangalore

- Helped to develop a platform to measure the standard pollutant gases like CO, CO_2, NO, SO_2, using low cost electro-chemical sensors, MSP430 mixed signal controller and a GSM module
- Aimed to instrument the traffic intersections in Bangalore and collect real time air quality data, hence useful for urban planning and traffic management, with a goal to reduce pollution
- Successfully modified the existing FreeRTOS source code and demo application (msp430f5438) to use it for msp430f5435 and tried to implement it on our main Enviromote code for effective multitasking

SCHOLASTIC ACHIEVEMENTS

- Was among the **top 1%** students in the country in **IIT-JEE** (among 4.75 lakhs students appeared) (2010)
- Secured All India Rank of **1515** and **258** at state level in **AIEEE**   (among 1 million appeared) (2010)
- Amongst **top 0.01%** students nationwide selected for **BITS Pilani**   (2010)
- Amongst **top 1%** students selected from state for Indian **National Physics Olympiad**   (2009)

KEY ACADEMIC PROJECTS

VOICE RECOGNITION SYSTEM   (May'11 - Jul'11)

Electronics Club, IIT Bombay

- Developed a Speaker Independent Voice Recognition System using Matlab and then tried to transfer it to DSP chip using C language, can recognize any human voice (command)
- Designed Pre-amplifier Circuit for condenser microphone using LF353, as well studied all other circuits using varieties of operational amplifiers like LM358, LM741 and separate transistors
- Studied many algorithms, Finally adopted silence and noise removal method using Mahalanobis distance, Discrete Wavelet Transformation, Pre-Emphasis, De-Emphasis, K-means Algorithm
- Implemented our system on 5*7 LED matrix for showing any 1 digit number, all capital English alphabets, all small English alphabets and any moving word using specific voice commands

BOOK KEEPING BOT PROJECT   (Jan'11 – Till date)

Technovation, IIT Bombay

- Designing an autonomous robot which can find the location of a book stored inside the IITB library and store a number of books and navigate within the library to the desired location
- Designed the sensor part of the Robot involving ultrasonic sensor, sharp sensor, LDR, Photo Module
- Working on the electronics part of the project which also involves study of stepper and servo motors

INNOVATIVE MOBILE APPLICATION FOR RURAL INDIA   (Feb'11 - Mar'11)

Guide: Prof Juzer M. Vasi

- Studied problems faced by peasants regarding the information in rural areas of India
- Use of the mobile phone for providing information regarding the commodity prices to the rural India

NEXUS (NATIONAL ROBOTICS COMPETITION)   (Aug'11 - Till Date)

Organised by: techfest'2012, IIT Bombay

- Built an autonomous robot using Proportional Integral Differential control, able to follow a white painted path on a black background and also able to solve a maze using Flood Fill Algorithm
- Designed a unique mechanism which enables the robot to pick up a block with a gripper

MARKET ANALYSIS   (Aug'11-Nov'11)

Guide: Prof Haripriya Gundimeda

- Detailed study of camera market in India which included analysis of the market share, market structure, level of competition and growth rate for major camera manufacturing companies

COURSES UNDERTAKEN

- Signals and Systems
- Electrical Machines and Power Electronics
- Digital Systems
- Analog Circuits
- Electronic Devices(Theory and Lab)
- Introduction to Electrical Systems
- Introduction to Electronics
- Complex Analysis
- Differential Equations
- Linear Algebra

LEADERSHIP EXPERIENCE

TECHNICAL SECRETARY, HOSTEL 5   (Aug'11 - Till Date)

- Part of 22 member council responsible for addressing hostel affairs and ensure its smooth functioning
- Responsible for administration of tech room and maintenance of electronics, mechanical tool kits
- Led a 8 member team for technical general championship-2, 2011 held at IIT Bombay and stood 2nd

COORDINATOR, ELECTRONICS CLUB 2011   (Jul'11 - Till Date)

- Organised workshops, competitions, varieties of talk sessions, help sessions for freshmen of IIT Bombay
- Responsible for conducting various workshops to acquaint students with technical basics
- Controlled line following competition held at IIT Bombay in which total of 120 teams registered, organised total 3 sessions/workshops each of 6 hrs for this competition

SOFTWARE SKILLS

- **Programming Languages:** C/C++, HTML, Ezwindows
- **Hardware Description languages:** winavr, arduino (Electronics Prototyping Language), IAR workbench
- **Tools:** Linux, Windows 98/XP/Vista/7, Mac OS
- **Softwares:** MATLAB, LTSpice, EAGLE, photoshop, Illustrator, Easy Scope, Adobe Dreamweaver

EXTRACURRICULAR ACTIVITIES

CULTURAL

- Led a 7 member team for production work of **Gyration'2011** and secured a place in top 3 for the same
- **Special mention** in **PAF'2010** (Performance Arts Festival) for production work
- Organised various literary and art competitions during Freshizza and hostel events including dussehra, matki phod, ganesh, painting, valedictory function, ganesh chaturthi, alumni welcome function etc

TECHNICAL

- Built an autonomous robot that can follow a white painted path on a black background in my first year, Robot used the Proportional Integral Differential for line following and differential drive mechanism
- Construction a manual robot properly in "Track Mania" competition and Secured 4th rank in hostel

SPORTS

- Part of school team for Kho-Kho tournament held at state level for 7 years, won the 2nd prize in "Institute Freshman Tournament" in Kho-Kho as a **captain** and also selected in institute team
- Interests include debating, trekking, playing Volleyball, TT, and coding