Rana Jitenkumar Babubhai | **09007001**
Electrical Engineering | **UG Third Year (B.Tech.)**
Indian Institute of Technology, Bombay | **Male**
DOB: 23/02/1990

Examination	University	Institute	Year	CPI/%
Graduation	IIT Bombay	IIT Bombay	2011	7.72
Intermediate/+2	GSHSEB	Sett R.J.J Highschool	2008	86.60
Matriculation	GSHSEB	Sir C.J.N.Z. Madressa Highschool	2006	91.57

SCHOLASTIC ACHIEVEMENTS

- Secured **AIR 285** in **IIT JEE 2009** out of 4,00,000 students appeared from all over India.
- Secured **AIR 406** in **AIEEE 2009** out of 12,00,000 students from all over India..
- Secured **6th Rank** in state and **1st Rank** in Navsari district in the entrance exam **GUJCET'2008**.
- Stood **1st** in Navsari district in scholarship exam by Gujarat govt and received scholarship for 3 years. **[Aug '04]**
- Stood **1st** in Navsari district in **Gujarat Talent Search Exam** conducted by Gujarat govt. **[Feb '04, Feb'05]**

PROJECTS UNDERTAKEN

Wireless Transfer of Sensor Data **[Aug '11-ongoing]**

Guide: Prof. S N Merchant

- Currently involved in a project on transfer of sensory data regarding pollutants and sending the data to the base station as well as selected devices (such as mobile or laptop) via bluetooth communication.
- This gadget will later be embedded in wristwatch.
- Till now SPI communication between Atmega 16 and mlx 90129 has been accomplished.

FM Radio **[Sep'11]**

Guide: Prof. S.N. Merchant

- Created a local oscillator to tune radio to the desired channel frequency.
- Filtered the received signal after tuning and amplified it.
- Designed an FM demodulator consisting of differentiator and envelope detector.
- Fed the signal to audio speaker input.

Filter Design on FPGA Boards **[Jul '11-ongoing]**

Guide: Prof. Sachin B. Patkar

- Currently working on verilog to create some filters and test them on an FPGA board.
- Will do image processing on an FPGA board.
- Till now I have created the code for BRAM and have implemented median filter on it in Xilinx and tested it on an FPGA board.

Rapid Roll~Arcade Game **[Mar-Apr '11]**

Guide: Prof Sachin B. Patkar and Udayan Ganguly

- The game designed was basically a finite state machine which made the use of LED matrix display.
- The display was implemented using persistence of vision, by time multiplexing the outputs at each row and column.
- Built sequential logic circuit for the same and also made verilog code and simulated it.
- The hardware was realized without using any microcontrollers, using basic ICs like muxes, demuxes, shift registers and logic gates.

Bot Follower **[May-Jun '10]**

Group Summer Project under Electronics Club IIT Bombay

- Built a robot which autonomously follows another robot based on image processing.
- Developed a code in C/C++ to take video inputs from an overhead camera; process it using **Open CV** and **Blobslib.**
- Give appropriate directions to the follower bot using by serial communications based on the image processing to drive drive left and right motors..
- Applied Proportional and Differential controls for more precise motions.

Mini UID Project (Unique Identification) **[Oct-Nov '09]**

Guide: Prof. Deepak B. Phatak

- Was a part of the project to make a C++ program for unique identification of students on the campus.
- Developed algorithm to convert gray scale image into black and white image in C++.
- As a part of the **Duplication Detection Team**, developed algorithm to detect duplication of the print.

Operational Amplifier Design **[Apr '11]**

Guide: Prof. Anil K.G.

- Designed a four stage **Operational Amplifier** as a part of my lab task with the given specifications.
- Simulated the design in ngSpice to confirm its validity and then implemented on circuit board.

Water Level Detector **[Jan '11]**

Guide: Prof. Anil K. G.

- Designed a water level detector using IR sensors in which an array of photo diode and LED was employed.
- Using the fact that intensity of the reflected light from water and air is different all circuit parameters were set.
- No. Of LEDs glowing indicates the level of water.

KEY COURSES UNDERTAKEN

Department courses:

Digital Systems
Analog Circuits
Signals and Systems
Electrical Machines and Power Electronics
Communication Systems*
Microprocessors*
Probability and Random Processes*
Electromagnetic Waves*
Power System**
Control System**
Digital Signal Processing**
Digital Communication**

Non Department courses:

Computer Programming and Utilization
Calculus
Differential Equations I
Differential Equation II
Complex Analysis
Economics
Psychology*
Data Interpretation and Analysis

**indicates courses to be completed by November 2011, **indicates courses to be completed by April 2012*

COMPUTER SKILLS

Software Languages: C, C++, HTML, Verilog (HDL), Assembly Language(8085)
Software Packages: Matlab, Scilab, Eagle, ngSpice, Open CV, Mathematica, MS Office
Operating Systems: Windows, Linux
Microcontrollers/Processors: Atmel AVR, Intel 8085

POSITIONS OF RESPONSIBILITY

- **Class Representative**, Electrical Engineering Department, IIT Bombay. **[Jul'09-ongoing]**
- **Organizer** and **Coordinator**, Professional Nights Department, **Mood Indigo** 2009 and 2010, IIT Bombay respectively, Asia's largest college level cultural festival.

EXTRA CURRICULAR

- Secured **4th position** in **Best Reader Competition** conducted by Sayaji Vaibhav Library in Navsari district. **[Sep '05]**
- Had demonstrated the model of **Anti Collision Device** which is currently implemented in Konkan Railway. **[Sep '06]**
- Was amongst **10 finalists** in singing competition for 1st year students in fresizza held by cultural administration IITBOMBAY. **[Aug '09]**
- Has learnt Indian Classical Music for one year at IIT BOMBAY. **[Jul '09-Apr '10]**
- **Runner up** in the **General Quiz** conducted by **TISCO (TATA Steel)** at Navsari. **[Oct '05]**
- Has been learning **Indian Percussion Instrument (TABALA)** for last two years here at campus. **[Mar '10-ongoing]**