



**Nikhil Sonone**  
**Electrical Engineering**  
**Indian Institute of Technology, Bombay**

**09007021**  
**UG Third Year (B.Tech.)**  
**Male**  
**DOB: 22/12/1991**

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2011	7.14
Intermediate/+2	Maharashtra State Board	M.E.S. Abasaheb Garware College, Pune	2009	92.67
Matriculation	Maharashtra State Board	St. Francis High School, Amravati	2007	87.23

## ACADEMIC PROJECTS

### Study characteristics of Resurf LDMOS

(Course undertaken by Fairchild Semiconductors)

Spring Semester - 2011

- Studied the fabrication process of Resurf LDMOS.
- Simulated the device structure in Sentaurus TCAD software.
- Studied the variation in device I-V characteristic and breakdown voltage as the doping, drift length and junction depth is varied.

### Prime Number Tester

(Guide : Prof. Udayan Ganguly)

Spring Semester – 2011

- Designed an algorithm to determine the primality of a 3-digit number.
- Implemented it on CPLD board using Verilog code.

### Mini UID using Fingerprint Analysis

(Guide : Prof. D. B. Pathak)

Autumn Semester – 2009

- Wrote a C++ code for classifying and storing the fingerprint sample and student details obtained at the time of registration.
- Wrote another code to access these details from the data bank.

### Study of Silicon Wire Solar Cell

(currently working)

Summer – 2011

- Studied the structure of Si Wire Solar Cell and its advantages & disadvantages over planar solar cell.
- Simulated the device structure in Sentaurus TCAD software.
- Perform optical simulation on the device to study the photon generation as the device dimensions are varied and suggest optimization for device efficiency.

### Automatic Lighting System

(under Electronics Club)

Summer - 2010

- Built a device to switch lights ON/OFF depending on human presence and also taking in consideration the sufficiency of ambient natural light.
- Used Passive Infrared Detector for sensing human proximity and Photo Diode for ambient lights.

### RFID door lock

(under HAM Club)

Winter – 2009

- Studied and suggested design for antenna of RFID reader.
- Door lock used an RFID reader to read the passive RFID tag and match it with the ones in database to open the lock.

## ACADEMIC ACHIEVEMENTS AND SCHOLARSHIPS

- Recipient of **NTSE** (National Talent Search Examination) **scholarship** awarded annually to top 750 high school students by Indian Government. [2007]
- Awarded **Regional Gold Medal** for **Mathematics** in International Assessment of Indian Schools (IAIS) conducted by **University of New South Wales, Australia**. [2005]
- Qualified for **INAO** (Astronomy Olympiad) and **INChO** (Chemistry Olympiad) conducted by **TIFR** and **HBCSE**. [2005, 2006 and 2008]
- Placed in national **top 1%** out of 34,707 students in **National Standard Examination for Physics** and **Chemistry** conducted by **TIFR** and **HBCSE**. [2008]
- Qualified for **KVPY** interview conducted by **IISc, Bangalore**. [2008]
- Secured 17<sup>th</sup> and 15<sup>th</sup> state rank in **MTSE** (Maharashtra Talent Search Examination) in consecutive years. [2005 and 2006]

## PRACTICAL SKILLS

- **Programming Languages** : C, C++, VerilogHDL
- **Software packages** : Sientaurus, Matlab, LTspice, Eagle
- **Micro-controllers** : AVR Atmel family
- **Lab** : Analog Circuit Design in MOSFET & BJT;  
Digital Circuit Design using gates and other IC's;  
Testing Motor and Generator characteristics and other properties.

## RELEVANT COURSES (till April '12)

- |   |   |
|---|---|
| • <b>Analog Circuits</b>                    | • Data Interpretation and Analysis        |
| • <b>Digital Systems</b>                    | • <b>Communication System</b>             |
| • Electronic Devices                        | • <b>Digital Communication</b>            |
| • Network Theory                            | • <b>Digital Signal Processing</b>        |
| • <b>Signals and Systems</b>                | • Electromagnetic Waves                   |
| • Electrical Machines and Power Electronics | • <b>Microprocessor</b>                   |
| • Power Systems                             | • Control System                          |
| • Probability and Random Process            | • <b>First Course in Optimization</b>     |
|   | • <b>High Power Semiconductor Devices</b> |

## POSITION OF RESPONSIBILITY

### Manager of Krittika, the Astronomy Club of IIT Bombay

- Heading a team of 4 people organizing all the astronomy related events, lecture series and observation sessions in the institute.
- Organizing and managing all the excursions of the amateur astronomers in the club.

### Co-ordinator of Pronites Team in "Mood Indigo 2010", Asia's largest cultural festival.

- Managed celebrities such as Asha Bhosale, Katatonia (Swedish Metal Band) and Amit Trivedi who performed at Pronites event.

### Co-ordinator of Events Team in "Techfest 2011", the Technical Festival of IIT Bombay

- Managed the organization of Treasure Hunt (open entry event).