

## Abhishek Rai

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## Objective

To work on projects that involve using concepts of design, machining and testing in order to enhance a process of a system. In search of position at an innovative firm.

## Education

Year	Degree/Certificate	Institute	CGPA / Percentage
2012	Secondary School Certificate	Swami Vivekanand High School	86.73%
2014	Higher Secondary School Certificate	R.J Junior College	84.46%
2014	1st Semester Btech Mech	K.J. Somaiya College of Engineering	8.69
2015	2nd Semester Btech Mech	K.J. Somaiya College of Engineering	8.19
2015	3rd Semester Btech Mech	K.J. Somaiya College of Engineering	7.57
2016	4th Semester Btech Mech	K.J. Somaiya College of Engineering	7.98
2016	5th Semester Btech Mech	K.J. Somaiya College of Engineering	7.82
2017	6th Semester Btech Mech	K.J. Somaiya College of Engineering	7.28
2017	7th Semester Btech Mech	K.J. Somaiya College of Engineering	8.08

## Projects

### **Autonomous Water Rover** (July 2017 - Present):

An autonomous water surface vehicle aimed for still water body monitoring and surveillance, along with applications like depth mapping, fish finding.

### **Robo-Rehab** (December 2017 - Present):

An automated continuous passive motion device for the arm to aid physiotherapists in rehabilitation of paralysis/stroke victims and compile statistical report to track the growth of muscle strength.

### **Pole climbing robot** (December 2017 - March 2018):

Pneumatic based pole climbing robot capable of translating linearly.

### **4-axis robotic arm** (2016):

A 4-axis articulated robot controlled using forward kinematics.

### **Robocon** (November 2015 - March 2016)

Designed and fabricated eco and hybrid robot to perform the tasks specified by ROBOCON theme.

### **Robocon** (November 2016 - March 2017)

Designed and fabricated a frisbee launching robot.

# **Experience: KJSCE ROBOCON (OFFICIAL ROBOTICS TEAM OF KJSCE)**

**Technical Head** (May 2016 - April 2017)

- Developed prototype components, assemblies and tooling
- Managed design and manufacturing team to build proprietary process equipment within cost and time constraints
- Created CAD models and drawing with motion and flow simulations
- Worked with various actuators including motors, pneumatics, linear actuators
- Successfully designed and fabricated hybrid robot, wind powered eco robot and automated frisbee throwing robot

## **Technical Skills**

### 1. Software Platforms Used:

- Computer Aided Design (CAD): Solidworks(2017), Autodesk Inventor(2014)
- FEA and simulation tools: Ansys(2016), Solidworks(2017), MATLAB(2016a)
- Programming languages: C, C++, Python
- Others: HTML, MySQL, Visual Studio

### 2. Hardware Machines :

- Manufacturing: Lathe, CNC Lathe, Shaping machine
- Prototyping: 3D printer, Laser cutter

## **Soft Skills**

- Self Motivated
- Handles details
- Keeps control over budget
- Defines needs
- Provides well-thought out solution

## **Extra-Curricular Activities**

- Table Tennis
- Sketching
- Volunteering in Education domain
- Trekking

## Co-Curricular Activities

- Won the "Most Realistic" award at the eYantra Ideas Competition 2018
- Won the "Design Contest" at the 31st International Conference on Vlsi Design & 17th International Conference on Embedded Systems for the project "Autonomous Water Rover"
- Qualified for zonal round of DRUSE-DRDO Robotics and Unmanned System's Exposition 2018, for the project "Autonomous Water Surveillance Rover"
- Qualified for the semi final round of Innovate FPGA, an International Competition by Terasic, for the project "Autonomous Water Rover" (Ongoing)
- Qualified for the stage 2 of 'Smart India Hackathon 2018 Hardware Edition' for the project 'Robo-Rehab' (Ongoing)
- Qualified for the Grand Finale of 'Maruti Suzuki Colours of Youth Technovation Challenge' for the project 'Autonomous Water Rover' (Ongoing)
- Certified Solidworks Associate (CSWA)
- Organized college level robotics workshop
- Successfully completed certified and non-certified courses in physics, coding and engineering

## Personal Details

Father's Name : Ghanshyam Rai  
Mother's name : Pushpa Rai  
Date of Birth : 13th June 1996  
Nationality : Indian  
Marital Status : Single

## References

1. **Mr. Avinash A Prabhudesai**

Assistant Professor  
Mechanical Dept.  
avinashp@somaiya.edu

Prof. Avinash Prabhudesai is the project guide of my final year project "Autonomous Water Rover". His work in KJSCE includes a university grant project on a regenerative brake and a consultancy project on performance improvement of a sugarcane harvester. He is Faculty Advisor for KJSCE Robocon and has an US Patent for "Radiator Grille" which was granted in January 2017.

2. **Mrs. Arati Phadke**

Associate Professor  
Electronics Dept.  
aratiphadke@somaiya.edu

Prof. Arati Phadke was my eYIC mentor and has also taught me a audit courses on 'painting and sketching' and also on 'VHDL'.She is also working as In charge of Accreditation for Institute since July 2014. She has been the Head of Department of Electronics Engineering from May 2008 to June 2011 and Dean (Student's Affairs ) from May 2005 to April 2008.

## **Declaration**

I, Abhishek Rai declare that all the details in this document are true and a valid proof of the same will be made available if required.

**Date : April 20, 2018**