

# PANKAJ KUMAR SINGH

B.Tech. Electronics & Communication Engineering  
UG(III Year I Semester)  
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Registration No: B.Tech./ECE/15116038/2018

Indian Institute of  
Technology  
Roorkee



## Area of Interest

Electronics and Computer science, Robotics

## Education

Year	Degree/Examination	Institution/Board	CGPA/Percentage
2017	B.Tech. 2nd Year	Indian Institute of Technology, Roorkee	7.283
2014	Twelfth	Narayana Junior College	95.09 %
2012	Tenth	DAV Public School	10.0

## Projects

### Implementation of Hough Transform on FPGA | Department of Electronics and Communications Engineering (SURA)

May 2017- Ongoing

- The objective of the project was to implement Circular Hough Transform for detection of circular objects. Hough transform is a basic technique used in object detection.
- The project involved:
- Implementing the algorithm using basic mathematical tools in MATLAB.
- Implementing and testing the algorithm on Xilinx ISE.
- Successfully testing the algorithm on FPGA board.

### ABU Robocon 2016, Pune | Team Robocon, IIT Roorkee

April 2016- March 2017

- Prepared a robot to participate in national level robotics competition "ABU Robocon 2016" as part of Team Robocon. We achieved 12th position among 119 teams.
- Work done by me under Team Robocon involves:
- Path Learning based navigation of three wheeled omni drive robot on general curve.
- Developing Fuzzy Logic library in cpp for robot navigation. Our aim was to implement fuzzy logic as an alternative to PID.
- Navigation of four wheeled mecanum drive using line following and wall following.
- Automation and control of a complete robot using various sensors and microcontroller.

### FPGA Implementation of UART | Digital Design Lab course project

March 2017 - April 2017

- The project involved the designing of state machine of transmitter and receiver and then using them to implement the UART communication protocol on FPGA using Verilog Hardware Description Language.

### Design of various electronic circuit in LT spice | Network Theory Course Project

August 2016 - November 2016

- The project involved design and simulation of below mentioned electronic circuits using basic electronic elements:
- Fuel indicator
- Analog Calculator
- Mobile phone detector

### Lumire Fonce - The Light Painting Bot | Models and Robotics Section, I.I.T. Roorkee

January 2016-February 2016

- The project involved creating the effect of Light Painting by navigation of a robot with LEDs mounted on it and capturing its movement through a camera and processing the information in MATLAB.

### Design of a Two-Stage Op-amp | Analog Circuits course project

November 2016

- The project involved the designing of a two stage op-amp with given characteristics such as gain , power consumption, bandwidth, slew rate. The design was implemented in LT spice.

## Awards / Scholarships / Academic Achievements

- Received Summer Undergraduate Research Award for the project "FPGA Implementation of Hough Transform"
- Secured 3rd and 8th state rank in International Olympiad of Science and Mathematics respectively in 2010.
- Received Best Theme award for the project " Lumire Fonce" at Shrishti , the annual hobbies club exhibition of IITR in 2016.

## Skills

Computer languages	Java, C++
Software Packages	Matlab, Xilinx Design Suite, LT Spice, QTSim Arduino, Git, Cadence
Languages Known	Hindi (SRW) , English (SRW)

## Positions of Responsibility & Extra Curriculars

### Member , Team Robocon ,IIT Roorkee

2015- Ongoing

- Member of Electronics team at Team ROBOCON, I.I.T. Roorkee. Our team works in designing , fabrication, control and automation of a robot to perform specific tasks according to problem statement issued by ABU ROBOCON (Asia Pacific Robot Contest) every year.

### Mentor at Models and Robotics Section

2017

- Mentored projects under the aegis of Models and Robotics Section, IIT, Roorkee.

**Event Coordinator at Cognizance**

2017

- Event coordinator at Aeronave: The Drone flying competition at Cognizance, the technical festival of I.I.T Roorkee.

**Member, National Service Scheme, Govt. of India.**

2015-2016

- Member of RT Education cell which taught underprivileged children at nearby villages to prepare them for a brighter future. Also helped organize various Blood Donation Camps.

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**References****Dr. Bishnu Prasad Das**

Assistant Professor

Indian Institute of Technology Roorkee

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