SURAJ MISHRA

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Academic Details

Year	Qualification	Institute	Percentage/CPI
2016-Present	B. Tech	IIT Kanpur	CPI 7.5/10.0
2015	Class XII: CBSE	Jawahar Navodaya Vidyalaya Thane	91%
2013	Class X: CBSE	Jawahar Navodaya Vidyalaya Thane	CGPA 9.8/10.0

Scholastic Achievements

- Secured All India Rank **2562** in **JEE-Advance 2016** out of 0.15 Million aspirants
- Ranked among top 1% in **JEE-Mains 2016** among 1.3 Million aspirants
- Awarded Merit certificate, selected as top 0.1% **Dakshana Scholar** amongst 600 JNVs in India

Projects

- **Humanoid | Robotics Club Project, Dec' 16 – Mar' 18:** (*Dean of Research and Development, IITK)*
  Designed **Stick-model simulation** of 14 DOF Biped on **Matlab** also designed the CAD of the biped on Autodesk Inventor and fabricated it using acrylic sheets and smart servos as actuators also Developed the Battery Management System to protect the battery from under voltage, overvoltage.
- **Robocon | May' 18 – Present** *(Prof. Ashish Dutta, Dept. of mechanical Engineering, IIT Kanpur*
  In summer '18 attended training session in centre of Mechatronics, IIT Kanpur, in which Successfully made an autonomous bot and drive it on 4 mecanum wheel to solve arena using OpenCV and ROS working on last year problem statement.
- **IARC- International Autonomous Robotics Competition| Techkriti' 18**
  Designed and fabricated an autonomous robot capable of performing Line following, Maze solving, & Wall following with PID control & detecting the color of objects and display the same on a GLCD using reflectance sensor array, ultrasonic sensors and color sensor. Motor Drivers were used to control the speed & direction of Robot using Arduino

Internship

Breathe |Summer Internship, May'18 - Jul '18 *(ITH Technologies Pvt. Ltd.)*

- Designed a portable/home-usable Breathe oxygen cylinder system for continuous supply of pure oxygen rich air with in-built 3 layer Air filter Designed and tested PCB for it, to drive an exhaust fan, negative ion generator, and automatically dispensed gas in pre set duration
- Designed all Cans for 20, 30, 75, 80, 125 bar pressure and simulated it on Ansys for different specifications, to check safety factor at different temperature and pressure

Mentored Projects

- **Follow Me -** a trolley that can follow a human through scanning QR code
- **Haptics Wristband -** a pair of wristband, which help to navigate direction while travelling with the help of vibration
- **Sketching Buddy -** a bot, having 3 DOF, which sketches any sketch through its G-code
- **Gaming Console -** a console for racing games using IMU, Arduino, and processing software

Positions of Responsibility

- **Coordinator| Robotics Club, IIT Kanpur** *(April 2018-Present)*

Leadership	• Managing a fund of 250K for various club activities and projects • Conducted Robotics Insight, a month long lecture series of professors on different aspect of robotics • Mentored group of 40 students to complete projects **Sketching Buddy, Haptics Wristband, Follow Me** in Summer'18
Initiatives	• Introduced new **light materials** and assembly operations for smooth and fine working of the mechanical system. • Introduced weekly progress reports for a continuous check on the progress of Summer Camp'18 projects. • Used advanced manufacturing process like **AWJM** and **Laser** Cutting as well as methods of engineering graphics.
Impact	• All the Summer'18 projects were successfully completed with 2 projects selected among the 5 best projects. • Sketching Buddy was awarded as the 'Best Implemented Project' of Sci-Tech'18 for its fine design and smooth working. • Haptics Wristband was awarded as the 'Best Innovative Project' of Sci-Tech'18for its innovative use of Haptics.

- **Junior Secretary| Team Inspire, DAAN,** *oct'17- present*
  - Conducted inspire sessions in more than 100 JNVs across India with the help DAAN members, and motivated them for higher studies and option available after their intermediate, and matriculation

Technical Skills& Courses

- **Software :** Inventor, Solidworks, Ansys static, Ansys fluent, VRep, ROS, Arduino, Matlab, NI- Lab View
- **Programming Language:** C, C++, python
- **Key Courses: Data** Fundamental of Computing, Introduction to Electronics, Dynamics of Rigid Bodies, Mechanics of Solid, Incompressible Aerodynamics, Fluid Dynamics and Rate Processes, Thermodynamics, Complex analysis, Linear Algebra, Partial Differential Equation, Data Structure and Algorithm, Compressible Aerodynamics, Aerospace Structures, Flight Mechanics and Controls.
- **Lab Exposure:** Abrasive Water Jet Machining, Lathe Machining, Milling, Laser Cutting, Casting, CNC Machining, EDM, Soldering, 3D Printing.
- **Electronic Modules:** Arduino, RPI, IMU, Pixhawk, Bluetooth, Wi-fi module, L298, Smart Servo, Stepper motor, Encoder, Relay.

Extra-Curricular Activities

- Awarded **Rajya Puraskar** in Scout for Scout service in 2011
- Successfully completed **259th National Adventure Programme** held at Pachmarhi (M.P.), and secured **'A'** grade
  Successfully developed a wireless RC electronic Wild Soccer bot for inter pool technical event and finished second in it.