MADHUKANT

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Third Year Undergraduate | IIT Kanpur

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Degree	Duration	Institute	CPI/ %
B.Tech (Computer Science & Engg.)	2015-2019	IIT Kanpur	8.3/10
XIIth CBSE	2013-2014	Kendriya Vidyalaya Rohini Delhi	95.6
Xth CBSE	2011-2012	Kendriya Vidyalaya Rohini Delhi	10/10

Scholastic Achievements

- Secured All India Rank **867** in Joint Entrance Exam Advanced 2015 among 1.5 lac students
- Secured All India Rank **1390** in Joint Entrance Exam Mains 2015 among 15 lac students
- Secured All India Rank **31** in SCRA – Special Class Railway Apprentice 2015

Internship

Agilo Technologies | Embedded Developer | IIT Kanpur *May '16 - Jul '16*

Helped in developing Agilo Technology's **Arduino** based embedded prototyping platform '**evive**' and developed use cases-

- **Obstacle avoiding robot** with integrated IMU which helped the robot to follow a particular path to reach its destination
- **Smartphone controlled skateboard** using bluetooth module and a proximity sensor to prevent any accidental collision
- **Home automation system** with a digital password protected door lock, smartphone controlled home appliances, and capable of detecting a human presence and light up the rooms accordingly
- Various **IoT Applications** like Chat Bot, Twitter Bot (Tweet via Arduino) & Plant Monitoring system
- Made detailed instructions tutorial for these projects as well on Instructables, Hackster etc.

Projects Undertaken

Swarm Robotics | *Prof. Indranil Saha, Deptt. of CSE* *May'17- Jul'17*

- Developed **cost efficient robots** with Raspberry pi as their Processing unit to map an unknown area
- Established communication between robots and server via WiFi and logging environment data to server
- Designed **motion primitives** for the robot and build ROS Packages for assigning and executing the motion commands

Abhyast: Boeing IITK Joint Venture | *Prof. Shantanu Bhattacharya , Prof. S. Kamle* *June '17 - (Ongoing)*

- Created ROS package for 3D **point cloud** of environment using **LiDAR** and **barometer** sensor
- Live wireless video transmission from client to server via **SSH** using ffmpeg on the client side
- Generated **Depth map** and **Disparity map** from offline **stereo images** using ROS Packages

Medipad | *ACA IIT Kanpur* *Sep'16-Feb'17*

- Developed a web app on **NodeJs** framework as a digital alternative for the *health booklet*, currently used manually in IITK
- Had different view portals for patient, doctor and chemist & all connected through **MongoDB** Database

Skills and Programming

Languages and Scripting: C, C++, Bash, Verilog, MIPS, Python
Softwares : R, Octave, Github, ROS (Robot Operating System), SolidWorks, LaTeX, Gazebo, Fritzing,
Web Development and Databases : HTML, CSS, NodeJS, JavaScript, MongoDB, MySQL
Microcontrollers & Onboard Computers : Arduino, FPGA board, Raspberry Pi, Odroid

Position of Responsibility

Academic Mentor | ESC101 *Mar '16 - Feb '17*

- Took many institute level remedial classes teaching **ESC101** course to 200+ students
- Helped academically struggling students in coping up with their academics

Extra-Curricular Activities

- Represented the school in **National Children's Science Congress** at Regional level, Delhi for 3 consecutive years and proposed new innovative ideas :
  - **2012** - Proposed efficient way to make roads by using plastic content in place of bitumen as binding agent
  - **2013** - Proposed more efficient streetlight system by using energy stored in Piezoelectric crystal in roads
  - **2014** - Proposed unique method to utilize the heat energy of Air Conditioners and generate useful energy
- Participated in Inter Hall competition **Takneek'16**, made a Hand gesture controlled Robot which got **2nd** prize
- Participated in **Code Fun Do** 2015 organized by **Microsoft**. Made an educational application based on computer for teaching Nursery level students about basic knowledge of objects and color
- Secured 6th rank in the city in National cyber Olympiad 2014 in New Delhi
- **Electromania, Techkriti 16 :** Implemented a Brick Breaker game on a self fabricated 8*8 LED matrix using **Arduino** microcontroller and was responsible for programming the micro-controller with self designed algorithm
- Secretary of Hindi Sahitya Sabha in the session 2016-17
- Attained Yellow Belt in Taekwondo affiliated by Taekwondo federation of India in 2016

Relevant Courses

Data structures and Algorithm	Discrete Mathematics	Abstract Algebra
Computer Organisation	Linear Algebra	Machine Learning*
Probability and Statistics	Fundamentals of Computing	Operating system*
Theory of Computation*	Algorithms II*	Introduction to Electronics

* Ongoing