

# VIVEK MUDGAL

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*address:*

A-313, LLR Hall  
IIT Kharagpur  
Kharagpur, WB 721302 INDIA

*email:* vivekmudgal001@iitkgp.ac.in

*website:* <http://vivekmudgal.in>

*GitHub:* <https://github.com/vivekmudgal>

*voice:* +91 7407777007

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## EDUCATION

**Indian Institute of Technology Kharagpur**

B.Tech in Electrical Engineering

Minor in Computer Science and Engineering

*July 2015 - July 2019(Expected)*

CGPA: 8.10 /10

**Gyan Ganga International School**

All India Senior School Certificate Examination

All India Secondary School Examination

*March 2014*

90.6%

CGPA: 10/10

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## RESEARCH

**IIT Kharagpur**

*Discrete-time Control Systems*

*May 2017 - July 2017*

*Prof. in charge:Dr. Arun Ghosh*

- Designed and implemented a discrete time controller for a non linear magnetic levitation model on Simulink
- Worked on developing a 2-DOF controller and implementing it on real world system.

**Aerial Robotics Kharagpur**

*Team Member, Control and Embedded Systems*

*January 2016 - Present*

*Prof. in charge:Dr Somesh Kumar*

- Designed and fabricated a dual flip flop based emergency kill switch of a quadrotor for safety purpose
  - Made the Simulink model of a quadrotor along with PID control to study its dynamics and control
  - Developed algorithms for vision based autonomous landing of drone in vicinity of mobile robotic platform.
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## ACHIEVEMENTS

**International Aerial Robotics Competition**

*August 2017*

- Represented IIT Kharagpur in the “2017 Dream Angel Cup” held in Beijing. Won an award for the Most Innovative Design in Asia/Pacific Venue
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## PROJECTS

**Smart Steer Wheel Chair Attachment**

*April 2016*

- Worked in a 20 membered team for Inter hall Hardware Modelling to make an autonomous Wheelchair
- Contributed in interfacing sensors including SONARs, GPS; writing obstacle avoidance algorithms on ROS and designing Eagle CAD circuits

**Corridor following Omni-Drive Robot**

*December 2015*

- Worked in a team to build a three-wheeled omndrive robot which follows corridor using 3 SONARs on Arduino.

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## POSITION OF RESPONSIBILITY

### Technology Robotix Society, IIT Kharagpur

February 2017-Present

#### Head

- Responsible for designing robotics event to be held at Kshitij 2018, Asia's largest techno- management fest
- Conduct technical workshops along with workshops and hackathons across India to spread the culture of robotics
- Organize weekly lectures on manual and autonomous robotics for over 300 students round the year
- Lead a three-tier team to successful planning and execution of all these events

### IEEE Robotics Winter Workshop

December 2016

#### Autonomous Robotics Mentor

- Conducted a week-long workshop for 43 first and second year undergraduates at IIT Kharagpur.
- Mentored the students build a gesture controlled robot capable of removing small obstacles in its path.
- Taught about microcontrollers, and concepts like ADC, timers, interrupts, communication and control systems.

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## COURSEWORK

### IIT Kharagpur

#### Completed

Linear Algebra  
Control Systems Engineering  
Analog and Digital Electronics  
Signals & Networks  
Power Electronics  
Data Analytics  
Programming & Data Structures

#### Ongoing

Algorithms  
Power Systems  
Embedded Systems  
Soft Computing Tools in Engineering  
Probability & Stochastic Processes

### Additional Courses

#### Completed

Control of Mobile Robots(Coursera)  
Aerial Robotics(Coursera)

#### Ongoing

Machine Learning (Coursera)

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## SKILLS

### Computer Languages

C/C++ (Proficient), Python, MATLAB/Octave

### Software & Tools

ROS, OpenCV, Arduino, Raspberry Pi, AVR, Gazebo, Git, Linux,  $\text{\LaTeX}$ , Eagle CAD, LabView, Simulink

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March 28, 2018