



Ekansh GUPTA
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EDUCATION

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI

2019 - 2023(Expected)

B.E IN MECHANICAL ENGINEERING. CGPA: 8.03/10.00

BRIGHTLANDS SCHOOL, DEHRADUN

2019

12TH STANDARD ISC. PERCENTAGE: 95.25

BRIGHTLANDS SCHOOL, DEHRADUN

2017

10TH STANDARD ICSE. PERCENTAGE: 97.2

PROJECTS

AUTONOMOUS QUADRUPEL

Mar 2021 - Present

Group project under Team Robocon to create an indigenous quadruped. Received funding of rupees **12 lakhs** for the project from BITSAA.

SELF BALANCING BOT

Sept 2021 - Present

Part of autonomous Mobile Robotics course trying to train an RL agent to self balance itself and maneuver to goal location

PATH PLANNING ALGORITHMS

Jun 2021 - Jul 2021

Implemented basic path planning algorithms in python such as A*, Dijkstra and more along with position estimate filters like GH Filter, EKF etc

EXPERIENCE

STUDY ORIENTED PROJECT

Aug 2021 - Present

Working under Dr Manoj Soni to create an adaptive solar panel cleaning bot. Received a funding of **Rs 40,500** to create the robot. Currently planning to get the **design patented**

SUMMER INTERN, SIRIUS MOTOR SPORTS

May 2021 - Jul 2021

Studied and simulated the electric power train for a Small Commercial Vehicle and optimised that according to our needs in Simulink.

STUDY ORIENTED PROJECT

Jan 2021 - May 2021

Worked under Dr Jitendra Singh Rathore on the development of artificial skin. We had to test the various mathematical models for skin materials in Ansys to test for the accuracy of the model and suggest the best one among them.

COMPETITIONS

EYANTRA IIT BOMBAY

Oct 2021

Working on creating a self balancing bot on CoppeliaSim

QUARKS BITS GOA

July 2021

Stood **second** in Arduino based inter-college competition.

FLIPKART GRID 3.0

Sept 2021

Created a swarm architecture to deliver parcels. Cleared round 1 prepping for round 2 now.

FLIPKART GRID 2.0

Sept 2020

Suggested a hexacopter for delivering parcels in indoor environments and simulated the same in ROS. Reached the semi-final round and got a cash prize of **Rs 1500**.

EYANTRA IIT BOMBAY

Sept 2020

Worked on ROS drone package to deliver the parcel to a fixed goal location.

POSITION OF RESPONSIBILITY

QUADRUPEL TEAM HEAD - TEAM ROBOCON

Mar 2021 - Present

Working on an autonomous quadruped like the Boston Dynamics' spot mini. Implemented the bezier gait for the quadruped and working on Reinforcement learning for a stable gait in uneven terrain.

TECHNICAL HEAD - ELECTRONICS AND ROBOTICS - IEEE BITS PILANI

Aug 2021 - Present

Technical head to look into all the work related to electronics and robotics and events concerning these in the fests.

TECHNICAL COORDINATOR - IEEE BITS PILANI

Mar 2021 - Mar 2021

Conducted the RL version of Robosoccer and helped teams get started with RL and train their models using stable-baselines

SKILLS

PROGRAMMING *Experienced* Python | C | Java | MATLAB *Familiar:* C++ | \LaTeX | Simulink
LIBRARIES Jupyter | Matplotlib | Numpy | Pandas | Scikit-learn | Gym | PyTorch | Tensorflow
SOFTWARES ROS | ROS2 | Webots | GIT | Fusion360 | ANSYS
LANGUAGES *Native:* Hindi *Fluent:* English

RELEVANT COURSEWORK

- **University:** Autonomous Mobile Robotics (Ongoing), Digital Image Processing (Ongoing), Deep Learning (Ongoing), Probability and Statistics, Linear Algebra, Differential Equations, Multivariate Calculus
- **Other:** Robotics Automation using ROS (summer term project), Control of Mobile Robotics Georgia Tech (Coursera, Audit), Robotics Specialization UPenn (Coursera, Audit)

VOLUNTEERING EXPERIENCE

- PMP Mentor :- Mentored a group of 10 students in their academic and social problems faced. Moreover, was a part of AUGSD Team to guide approx 1200 juniors with their time table formation.
- Team Robocon :- Organised a workshop to teach students to create a bluetooth controlled bot using Node MCU. Later conducted an online workshop for approx 500 juniors to promote Arduino and robotics culture on campus.

EXTRA

- Guitar
- Cycling
- Badminton
- Stock Trading