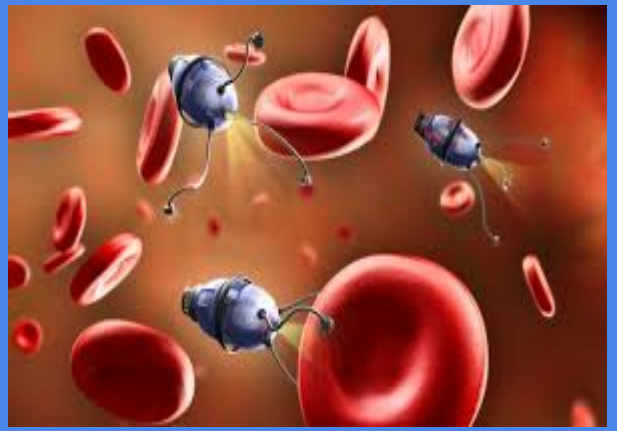
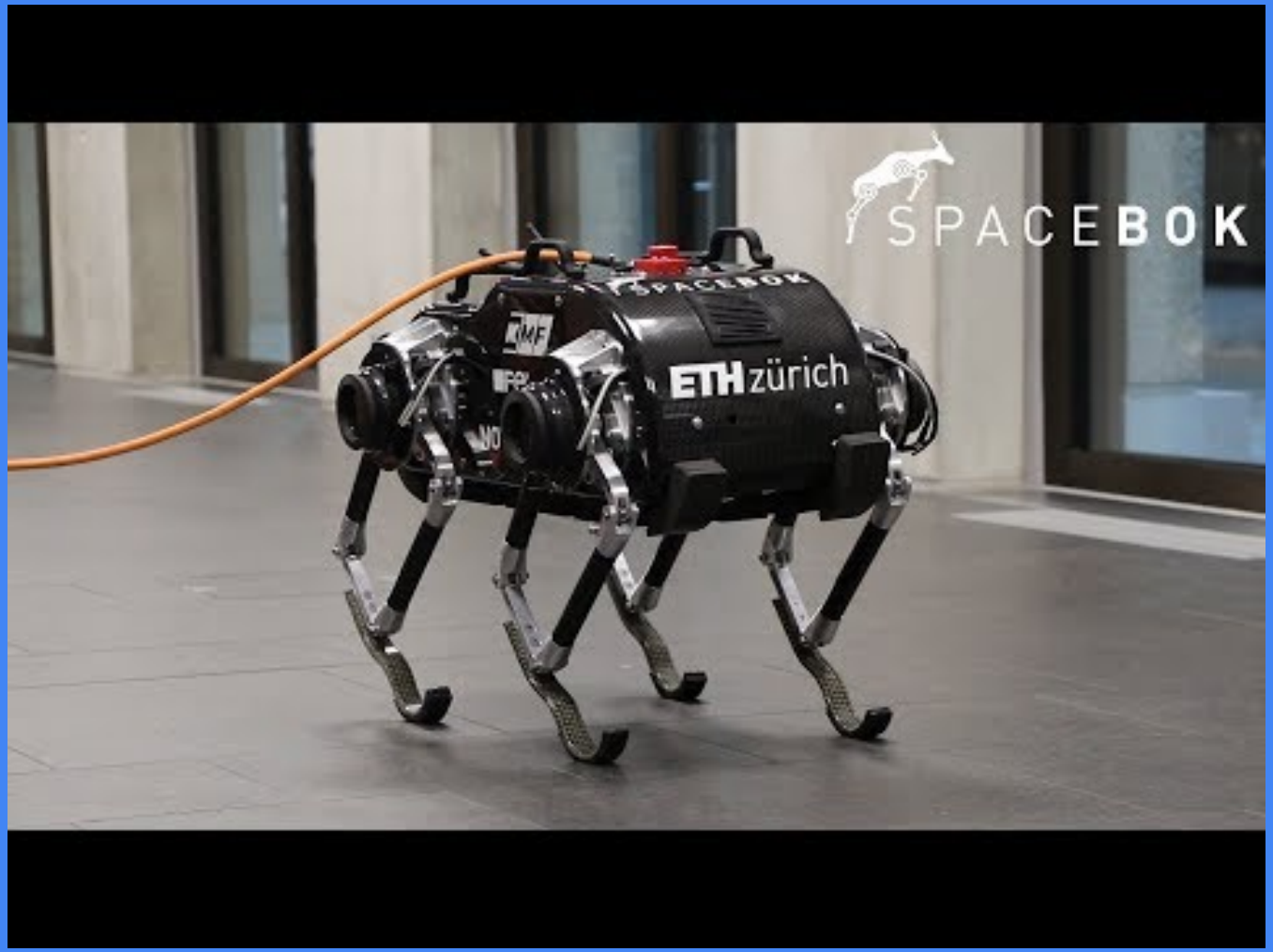
Robotics Insight - II

Introductory Session




Google
LUNAR XPRIZE
BACK TO THE MOON. FOR GOOD.


SPACEBOK
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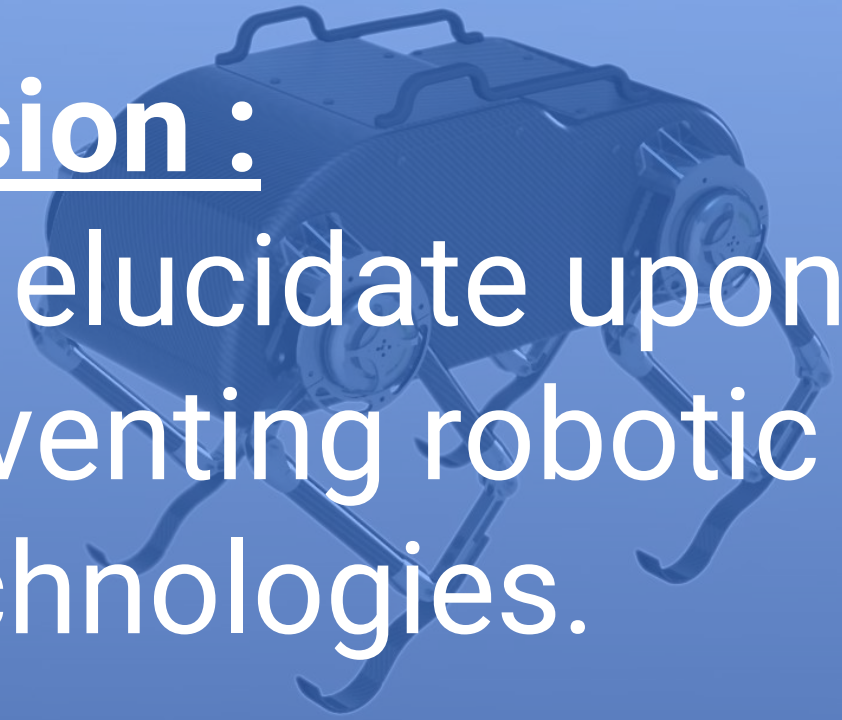
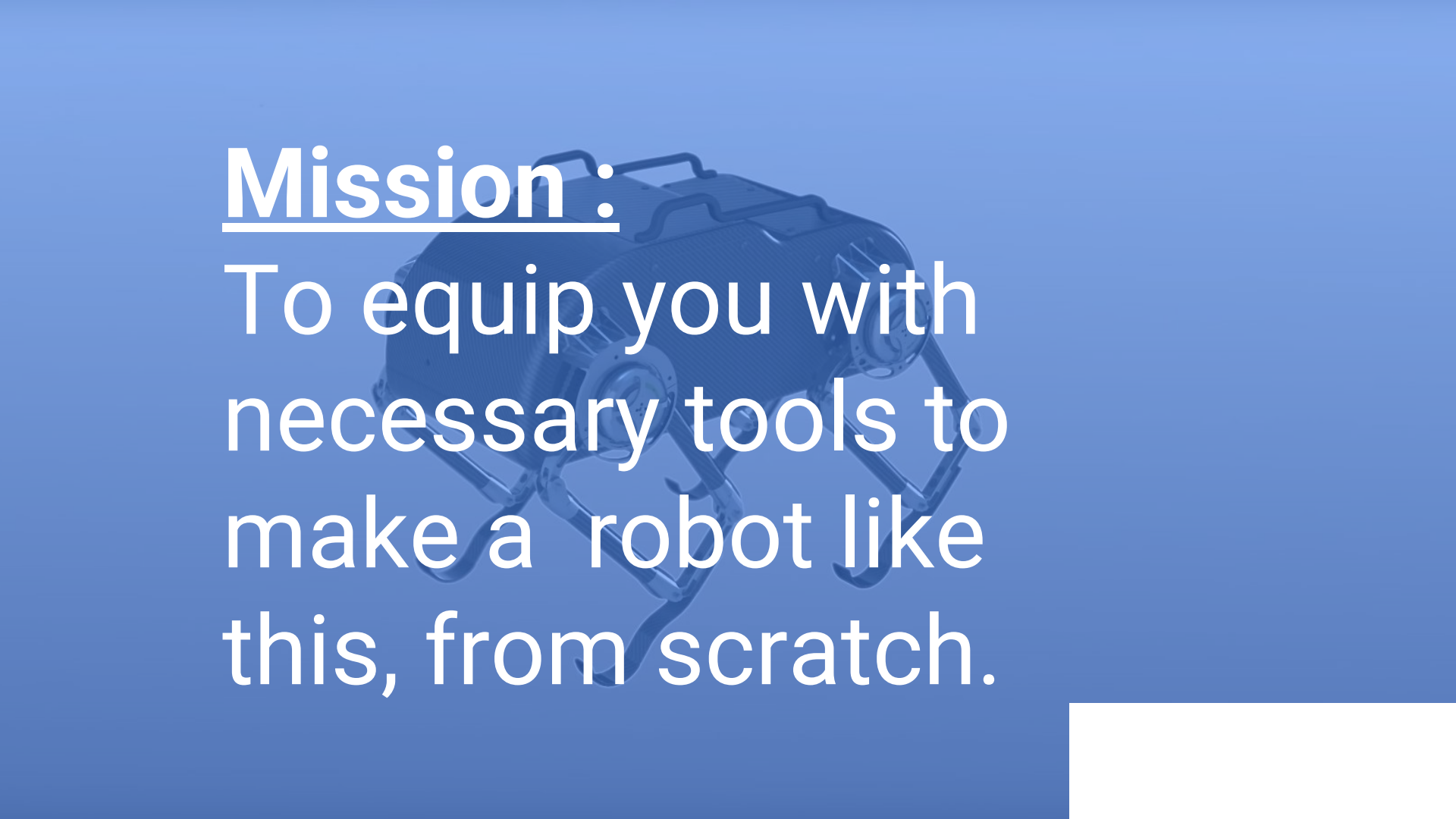


Vision :

To elucidate upon adventing robotic technologies.



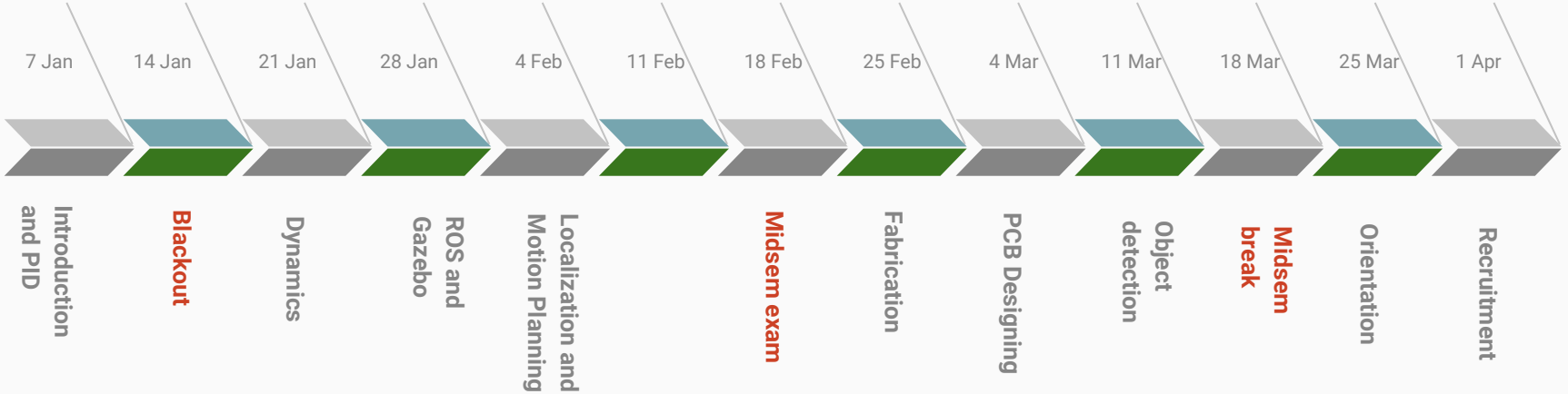
Mission :

To equip you with necessary tools to make a robot like this, from scratch.

Robotics Insight-II

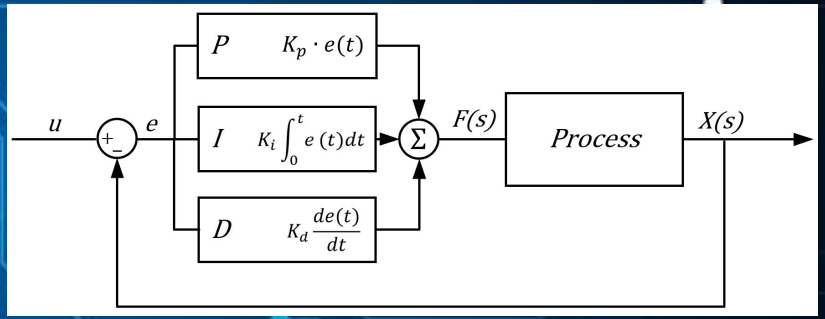
- Targeted Approach
- Application Oriented Learning

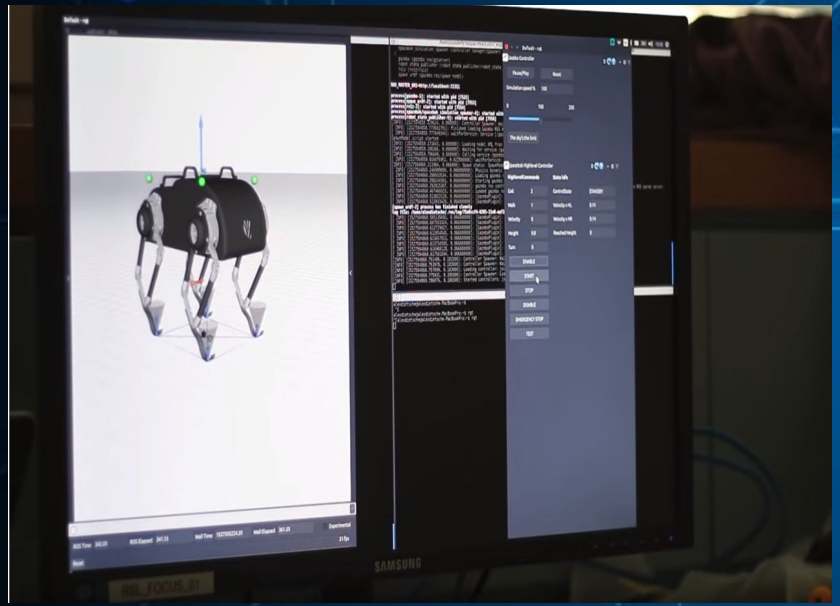
Timeline for Lectures



Lecture 1: PID

This lecture will introduce you to controls and basic feedback control system using PID.





Lecture 2: Dynamics

Explain the basics of dynamics and the use of MATLAB

Lecture 3: ROS and Gazebo

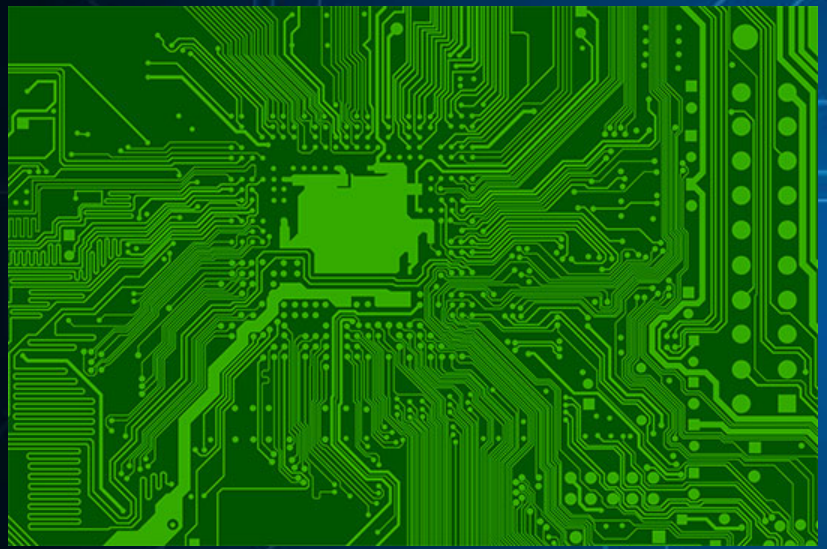
Install ROS and Gazebo in devices and explain the basics to get started

Lecture 4: Localization and Motion Planning

Popular localization algorithms and path planning algorithms

Lecture 5: Fabrication

Division of assemblies and CAD modelling

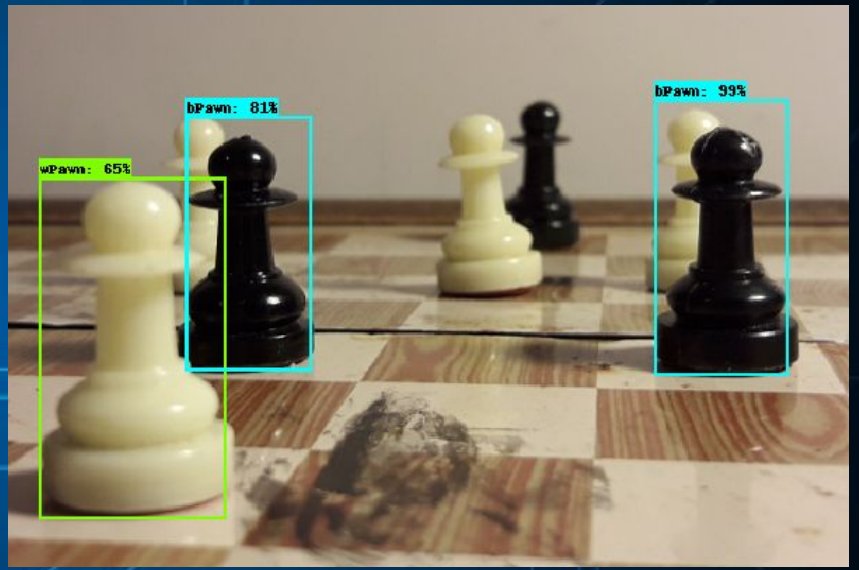


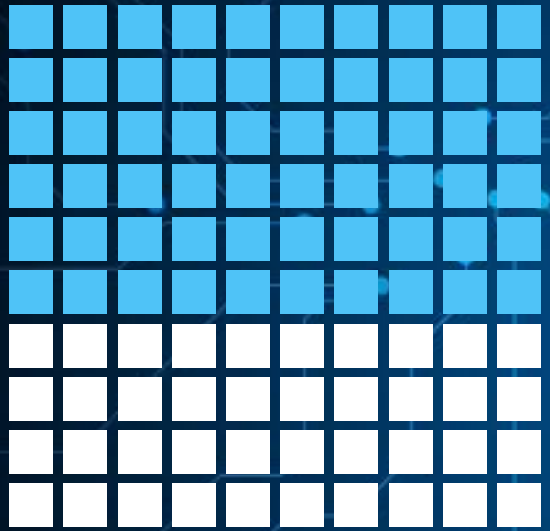
Lecture 6: PCB Designing

Introduction to electrical circuits, PCB designing and simulation

Lecture 7: Object Detection

Machine Learning and CNN basics, usage of TensorFlow libraries for object detection





Lecture 8: Orientation for Summer

Learned concepts in the background of the problem statement

Mini-Problems

Torque Calculation Algorithms

Application of Newton-Euler method to calculate torque

Path planning simulation

Using ROS packages to use popular path planning algorithms

Basic design of robot

Design a primary
CAD model of a robot

Buck converter design and simulation

Use KiCAD and LTSpice to design a buck converter

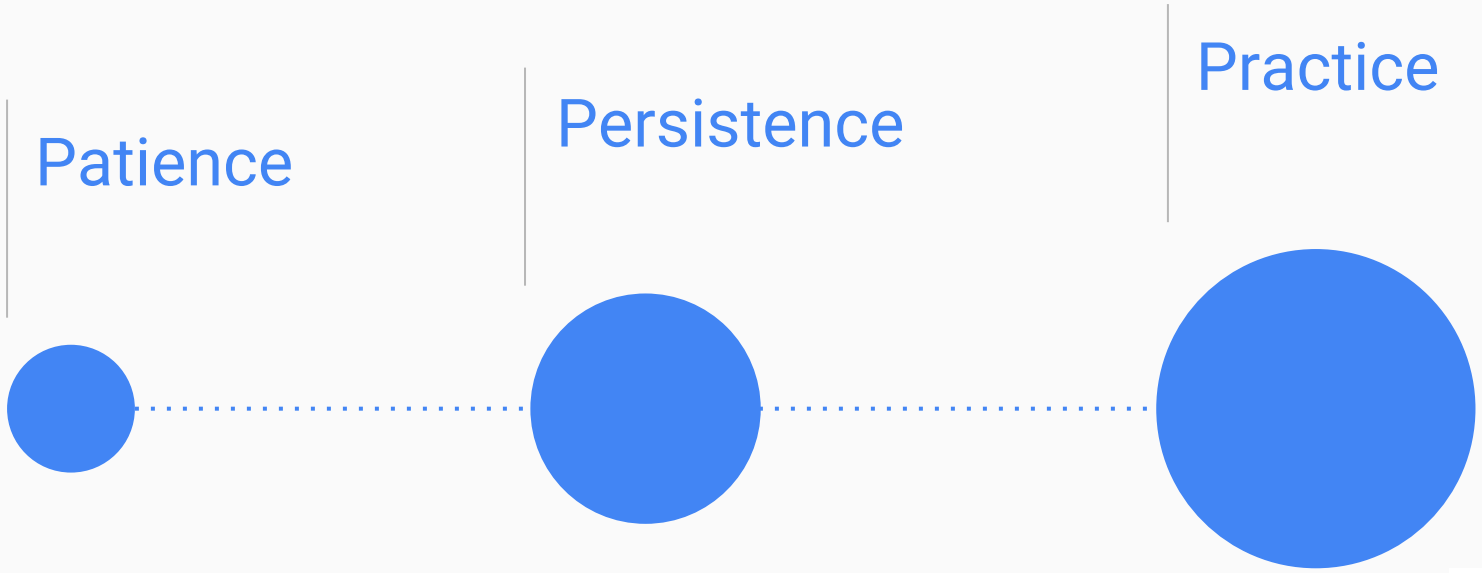
Object detection

Using TensorFlow to build an object detection model

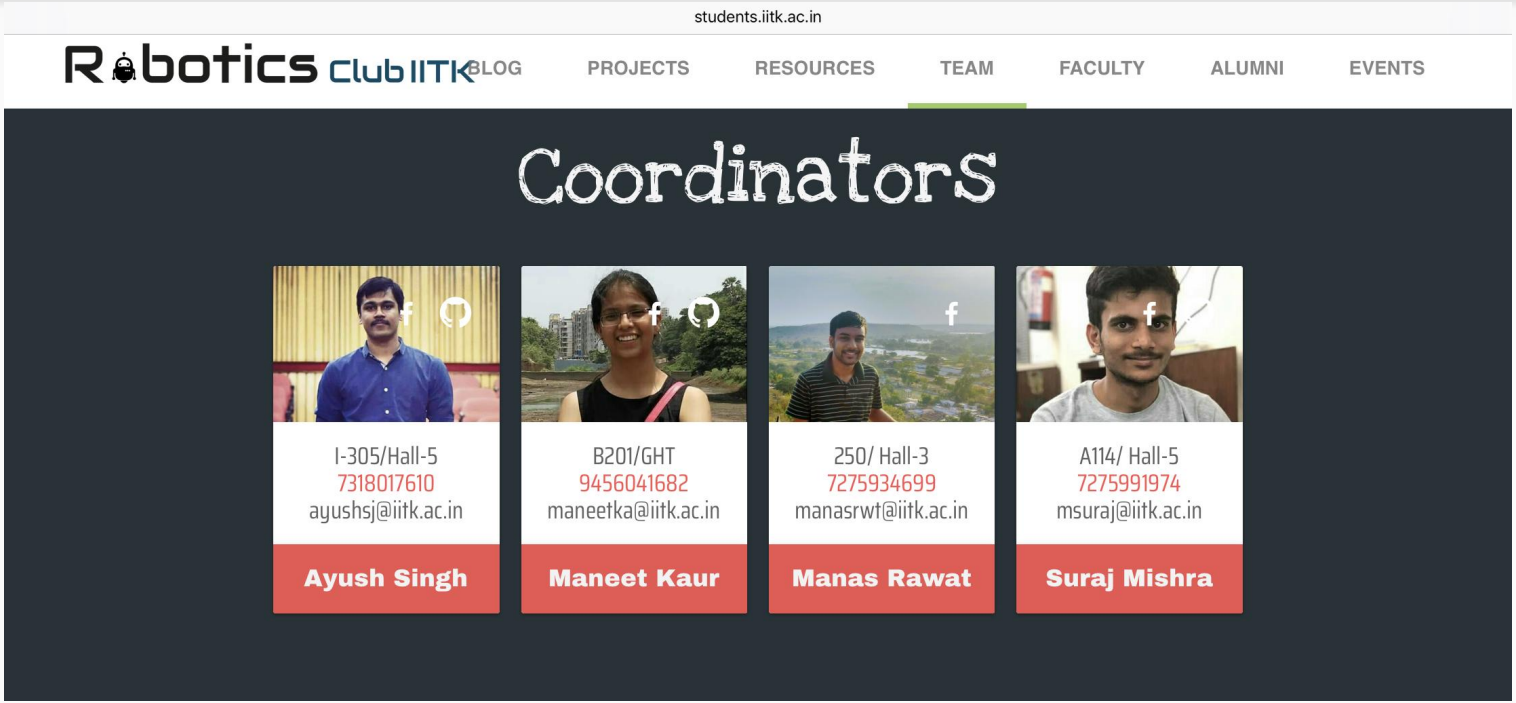
Recruitment Process

- Continual Assessment via Assignments etc.
- Follow-up Recruitment Test : Based on lectures.
  Part 1 : General Aptitude
  Part 2 : Specialization
- The Specialization Section would be based on the content based on lectures , but not limited to it.
- To ease out the burden , you need to choose any attempt any two from the given choices in Part 2. Preferably the sections you are most confident about :)
- Last but not the least : “ Enthusiasm “

The Rule of 3-P’s



Contact Us



http://students.iitk.ac.in/roboclub/team/