# PID based Path Planning

## Mentor Name: Amiraj

**Interns Required:** 2

**Problem Description:**

The aim of the project is to detect the Firebird V robot using image processing in an arena and given a fixed end location, plan the robot's motion using PID closed loop feedback system. The arena will contain moving obstacles.

**Task List:**

| Task No. | Task | Deadline |
|---|---|---|
| 1 | Learning Firebird V Programming, Xbee Communication, PID controller, OpenCV & make the arena | 5 days |
| 2 | Develop Motion commands and communication between Firebird V and Laptop | 5 days |
| 3 | Detection of Firebird V using Image Processing | 2 days |
| 4 | Develop the PID controller | 8 days |
| 5 | Tune the PID controller for smoother movements | 5 days |
| 6 | Testing / Documentation (Usage Manual, document the code) / Create tutorials for PID controller | 5 days |

## Prerequisite:

, Firebird V Programming, Xbee communication (preferred), Python or C/C++ with OpenCV, Experience with Linux

## Hardware Required:

1. Firebird V
2. Xbee Modules – 2
3. Laptop

## Deliverables:

1. Documented Code for PID controller
2. Documentation (User Manual) and tutorial on PID controller

## Software Required:

AVR Studio, Python IDE, Linux

## References:


1. PID General Idea: http://ctms.engin.umich.edu/CTMS/index.php?example=Introduction&section=ControlPID
2. Courera Course on Control Theory: https://www.coursera.org/course/conrob
3. PID Tuning tutorial: http://www.expertune.com/tutor.aspx