



WEEKLY NEWSLETTER

The current third years aim to participate in a prestigious international competition namely the Federation of International Robot Soccer Association (FIRA) 2016. Among the various events held at FIRA, we will be taking part in Robosot and Hurocup.

HUROCUP:

We aim to build a robust, autonomous and versatile Humanoid robot capable of performing human resembling tasks in complex environment through search, track, navigation and execution.

Current Status:

- ❖ Mathematical modelling of humanoid robot using LIPM (Linear inverted Pendulum Model).
- ❖ Dynamic study using Lagrange's Method.
- ❖ Using Inverse Kinematics to obtain motors' (joint) angles.
- ❖ Designing a complete Gait cycle for walking.
- ❖ Simulation in GAZEBO.
- ❖ Fabrication of Biped using Herkulex motor.
- ❖ Multiple Herkulex control in ROS using PyHerkulex library.

ROBOSOT:

An Autonomous omnidirectional mobile robot is required to meet the following challenges:

1. Localization
2. Obstacle Avoidance

This will be done by using Image processing and simultaneous feedback from Odometry data (Distance traversed), IMU (Orientation), ultrasonic sensors(distance of obstacle).

Current status:

- ❖ Construction of mechanical setup nearing completion.
- ❖ Selection of the most suitable color space for color detection under different lighting conditions.
- ❖ Study of kinematic equations of bot and simulation in MATLAB (Simulink).
- ❖ Published/Subscribed sensor data in ROS.
- ❖ In search of a parabolic reflector for a 360 degree field view.
- ❖ Interfaced two systems for debugging purpose.