BOEING & IIT KANPUR

JOINTLY LAUNCH

ABHYAST PHASE - IV

The office of Research & Development at IIT Kanpur calls for research proposals from Under graduate students from all the disciplines for the formulation of a completely autonomous robotic system for difficult and rugged terrains.

Problem Statement

A swarm of Flying Vehicles capable of scanning a complete area in 3-Dimensions and send data to a Master Ground Vehicle which should use that data to map this scanned area and plan the best possible path from a particular Point A to a point B in that map. The ground vehicle should be able to avoid any obstacle that come in the path and execute a forward jump when necessary.

General Information

Project Duration: One year

Team Size: Team sizes should be between 2 to 5 members.

Team Requirements: Each team should have representatives who have expertise in
- (a) Sensory systems track,
- (b) Actuation system track
- (c) System integration track
- (d) Aerial navigation track for terrain mapping

Presentation: Each team should submit a hard copy of the written proposal, signed by individual members, to Dr. Shantanu Bhattacharya (office address enclosed below), with their name, roll no & email ids. They should also submit a soft copy in pdf format to bhattacs@iitk.ac.in latest by 04:30pm of December 01st (Saturday), 2012. They will have to make a presentation of maximum duration 20 minutes in front of a expert selection committee on December 2nd , 2012 (10:30AM onwards in FB370)

Judgment: Presentations will be judged by a selection committee comprising of faculty members from different disciplines at IITK.

Results: The selected teams will be informed about the further details of the project.

Requirements of the robot

The vehicle
- Should be contained in a space of size 40cm x 40cm x 40cm
- Should be able to traverse successfully on rough terrain in an unknown environment.
- Should be equipped with suitable sensors which can detect the oncoming surface irregularities (Sensory module)
- Aerial Vehicles should be able to send Asynchronous data to the ground Vehicle through wireless means
- The ground Vehicle should be able to carry a payload of 500g
- The bot should be able to send its approximate location using GPS and GPRS

TENTATIVE SCHEDULE

Date of Announcement	November 12th , 2012
Last Date of Receiving Proposals	December 01st , 2012
Date of presentation	December 02nd , 2012
Announcement of Result	December 03rd , 2012
Official start of project	December, 04th , 2012

Special Benefits

- ❖ Selected team members will be funded with a ***monthly stipend***.
- ❖ Selected team members will get opportunities to present their project work and skills to nationwide community by participating in workshops and competitions.
- ❖ The students will also be able to interact with national and international experts from Boeing Company and faculty members at IITK.

In case of any queries, please Contact: Dr. Shantanu Bhattacharya, NL-115,Manufacturing Sciences Laboratory, Department of Mechanical Engineering, Indian Institute of Technology, Kanpur, email-id: bhattacs@iitk.ac.in.