

Project: Hexapods and Localization

The goal of this project would be to create a hexapod robot to be controlled wirelessly (using the Xbee 802.11 RF module). A ceiling-mounted camera would allow the robot to use localization algorithms to move towards a given object (ie a red ball) that would be placed somewhere within the room. Construction of the hexapod would involve lastercutting parts from either plywood or plastic and connecting them using screws and bearings. We would use six servos to drive the legs (one per leg) which we're hoping to acquire from a lab on campus, but it might be necessary to purchase them. The ceiling-mounted camera would be connected to the labkit, which would do the image processing and localization, determining what path the robot needs to take to avoid obstacles, etc. An xBee series 1 RF transmitter/receiver would also be attached to the fpga, and would be used to transmit data to a second xBee module on the robot itself. I recently purchased two such modules for work on a TechX project, although I don't have much experience with them yet. The robot would be directly controlled by a simple micro-controller program, as the xBee doesn't have enough output pins to drive all 6 of the motors.