OKGems: GENI-Federated Multimodal Cyber-Physical System
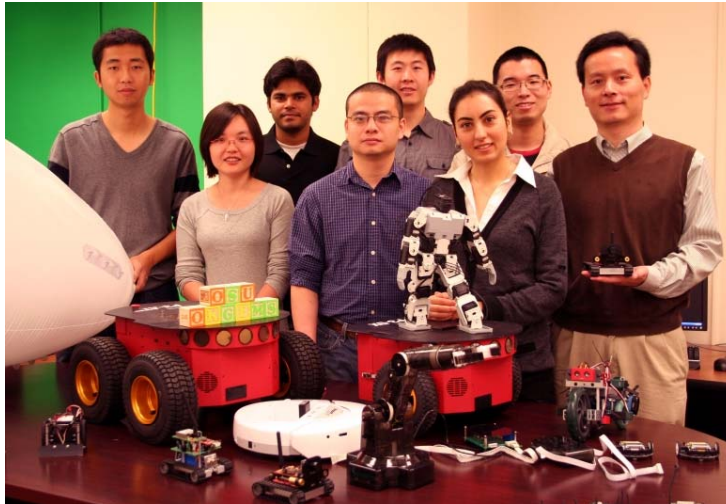
CS and ECE
Oklahoma State University

GEC 6, Salt Lake City, Utah, 2009

The Team

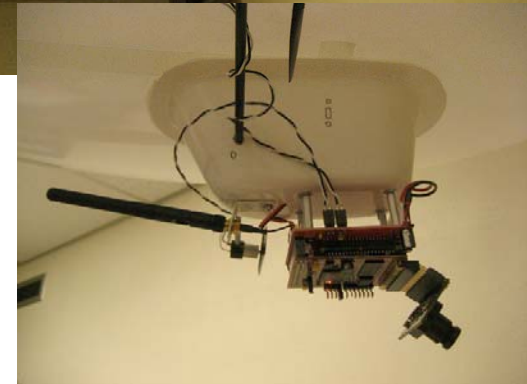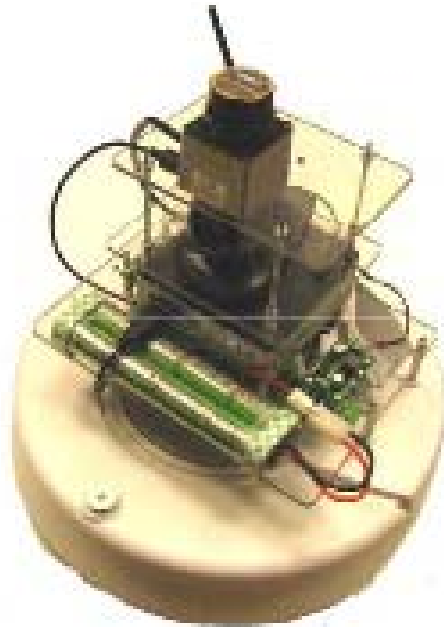PI: Xiaolin (Andy) Li, CS
CoPIs: Nazanin Rahnavard, Weihua Sheng, ECE
          Venkatesh Sarangan, Johnson Thomas, CS

Students:
          Xinxin Liu, Praveen Khethvath, , Nhat Nguyen,
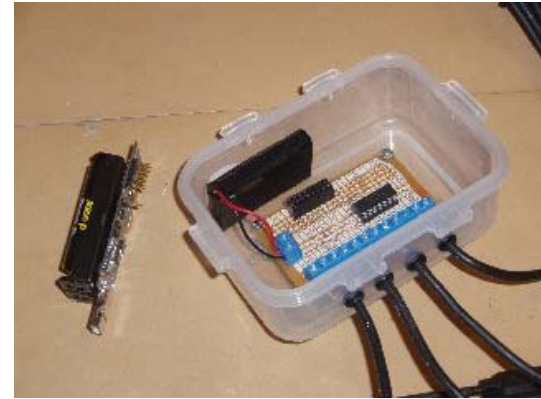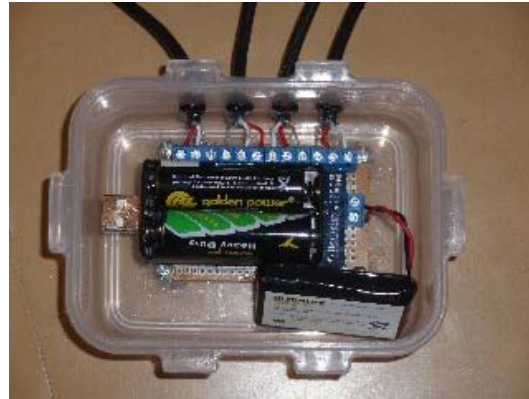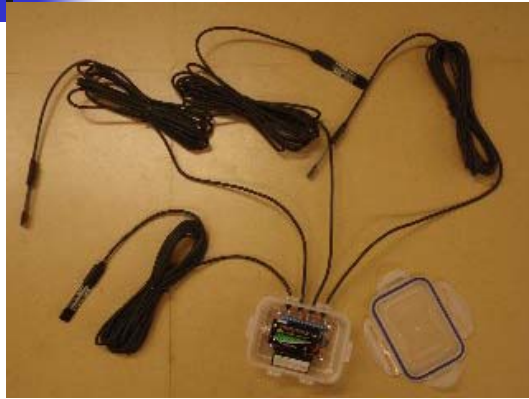   Bo Xu, Li Yu, Han Zhao

Some Robots

More Robots

Precision Farming

With N. Wang, OSU

Plan

- Year One
  - Integrate a small sensor network using KanseiGeni and ORCA (local)
  - Integrate a small field-deployed sensor network (local)

Plan (Cont'd)

- **Year Two**
  - **Integrate two sensor networks: one in lab and one in the field (remote programmable)**
  - **Integrate various robots**
    - Case Study 1: Robotic Arms picking up patterns based on pattern recognition algorithms (camera and RFID)
    - Case Study 2: Mobile Sensor Network Platform on iRobot Create and Pioneer3

Plan (Cont'd)

- ## Year Three

  - Refactor the abstraction models of robots and sensor networks

  - Federate all devices into GENI (including a small cluster)