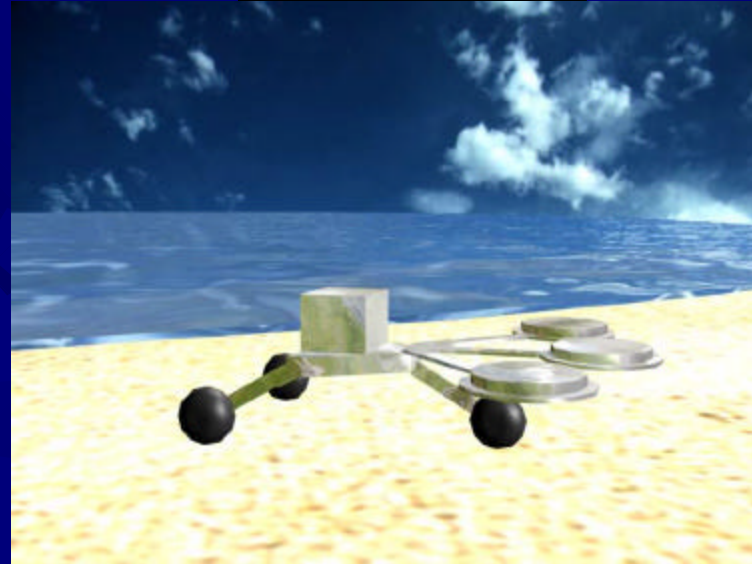


Atocha Too



Center for Intelligent Machines and Robotics

&

Machine Intelligence Laboratory

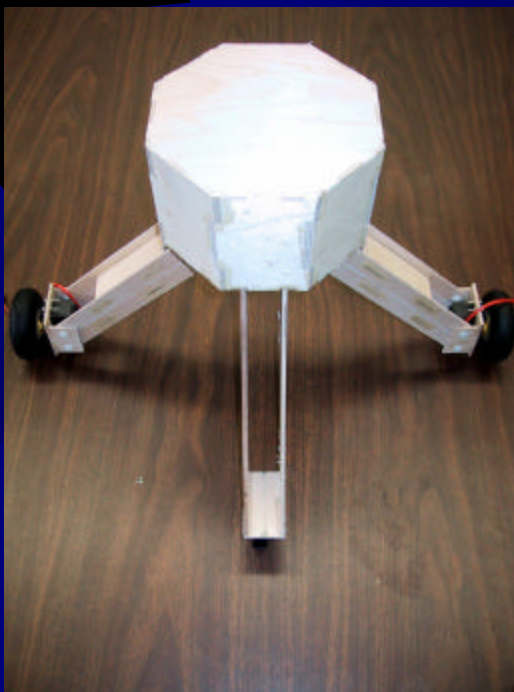
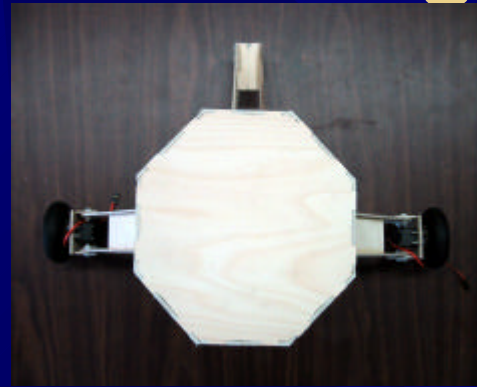
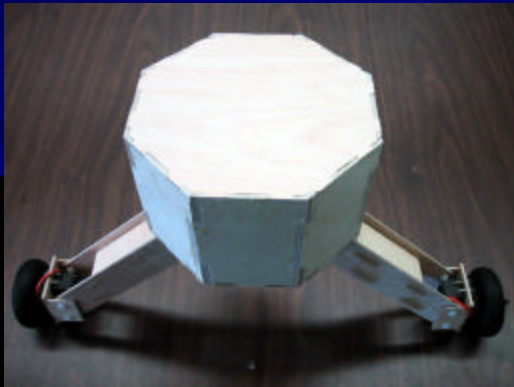
University of Florida

Presented by:

Donald MacArthur

11/29/00

Vehicle Platform Design



11/29/00

Vehicle Overview

☀ Actuators:

- ☀ Modified Servos (2)

 - ☀ Main Drive Motors

- ☀ Standard Servo (1)

 - ☀ Sensor Panning Servo

Vehicle Overview

☀ Sensor Types/Sensors:

☀ Ultrasonic Ranging System (1)

- Sonar Transducer and Module

☀ IR Emitter and Receiver (1)

☀ Metal Detector Circuit (1)

- Inductor Coil and Main Board

Vehicle Overview

★ Power:

★ Six Pack (AA)

- Micro-Controller and the Servos.

★ Four Pack (AA)

- Sonar Ranging Board

★ 9V

- Metal Detection Board

Vehicle Overview

☀ Behaviors:

☀ Peripheral Area Surveying and Recording

- Infrared and Sonar Range Data

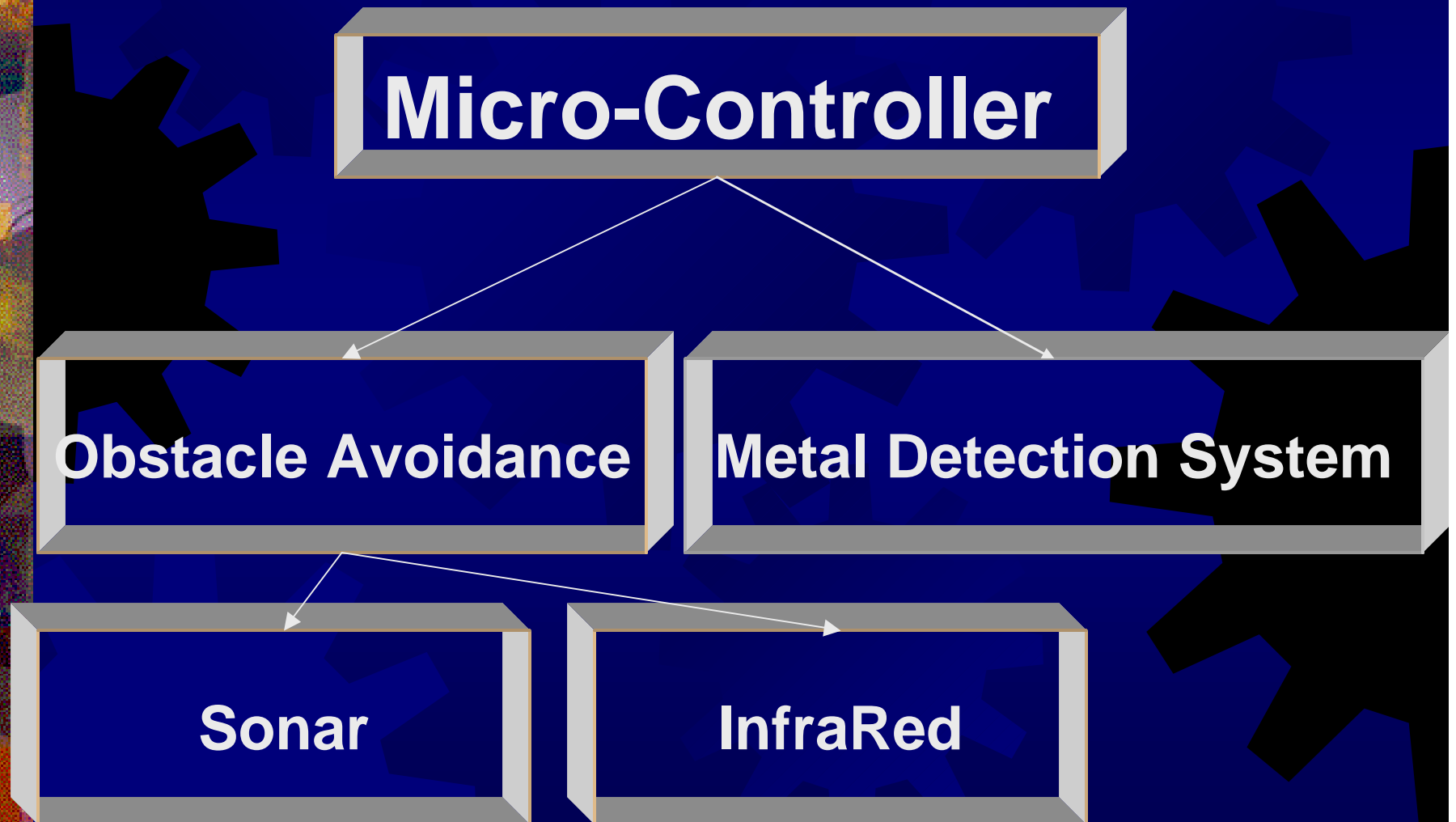
☀ Obstacle Avoidance

- Direction Check Until Clear Path is Found

☀ Metal Searching

- Switching Between Obstacle Avoidance and Metal Detection

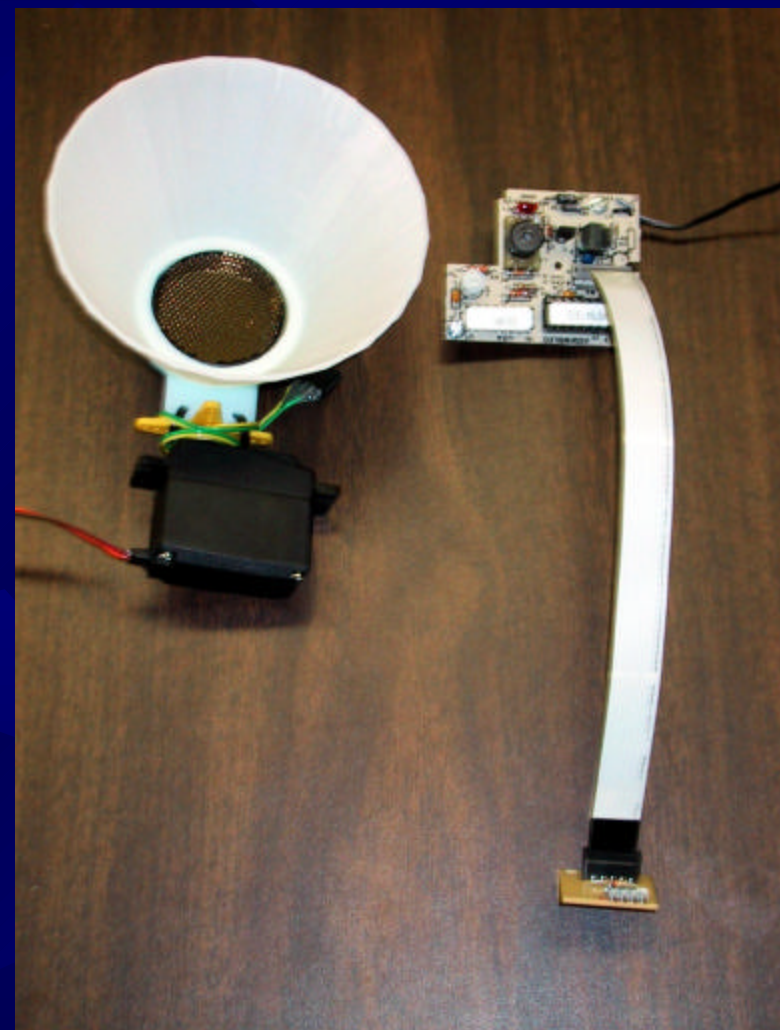
Sensor Suite Organization



Sensor Suite

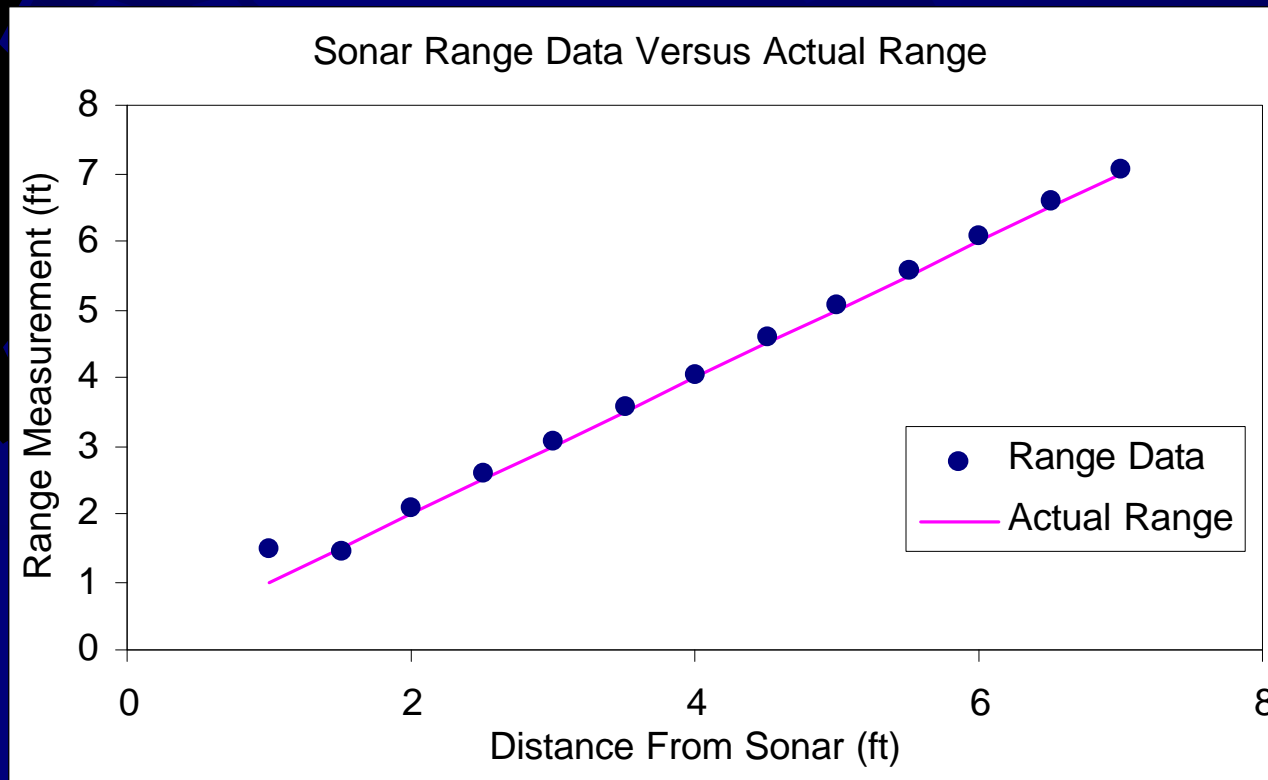
- ☀ Sonar

- ☀ Used primarily for obstacle avoidance



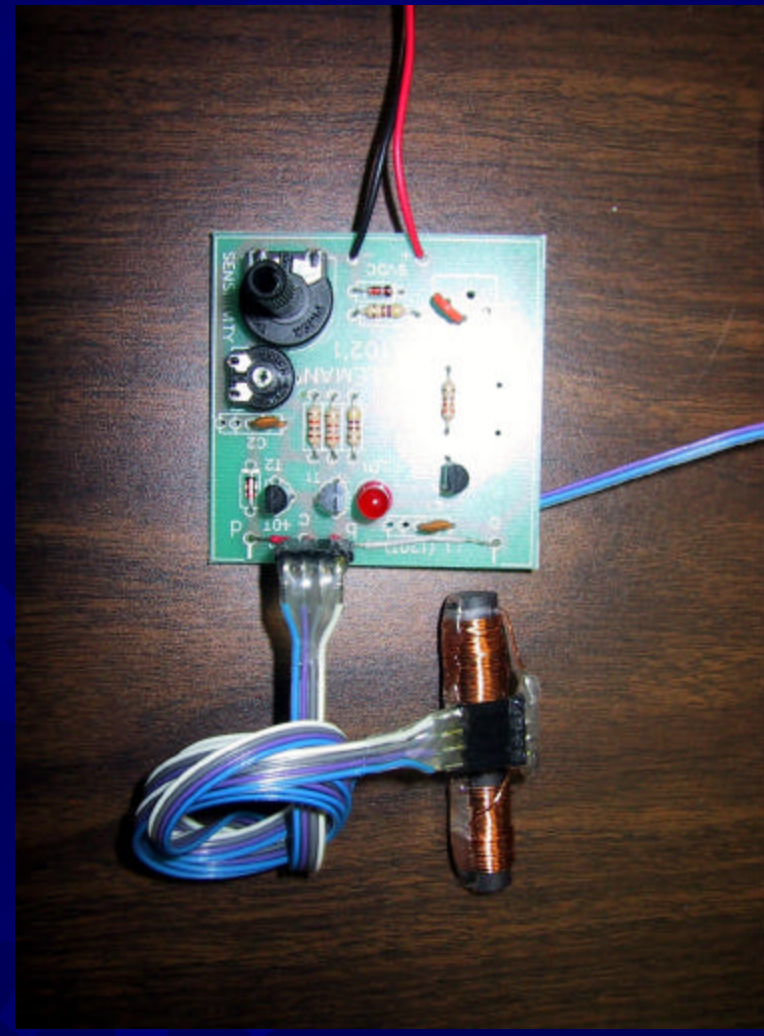
Sonar Obstacle Avoidance

☀ Sonar Testing Results



Sensor Suite

- ★ Metal Ordinance Detection System
 - ★ Analog signal sent to micro-controller and processed.



Sensor Suite

- ★ Micro-Controller
 - ★ Processes information
 - ★ Motor Control
 - ★ 32Kb External Memory Modification (Non-Volatile)



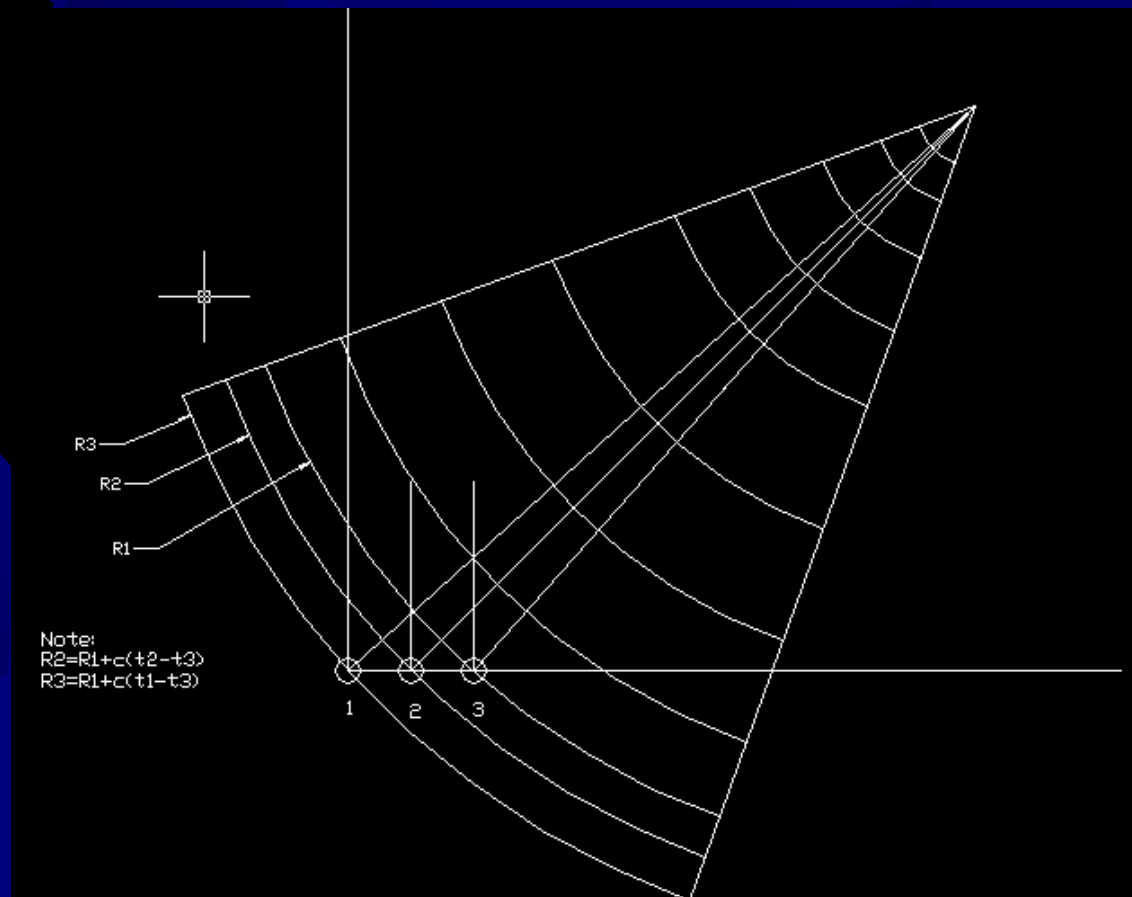


Future Research

- ✦ Sonar Position System
- ✦ RF Communication Link
- ✦ Portable Base Station with Mapping Capability
- ✦ Multiple Robot Construction

Sonar Positioning System

☀ Passive Positioning System



Multiple Robot System



11/29/00