Team Project:
A Surveillant Robot System
Status Report: 04/05/2005

Little Red Team
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Agenda

☐ Problems
☐ Team meeting
☐ Progress report
Problems

- Lego Mindstorms and Vision Command operates on Windows 98.
  - But, OS of our notebook computers is Windows XP professional or Home Edition. So, We need XP patch to Mindstorms and Vision command
  - → This problem is solved.

- Basically, Lego company does not provide the communication or data transfer functionality between Vision Commander and Mindstorms → leJOS support Java Vision API

- Java Communication API does not support USB communication. → We directly should implement that functionality. → leJOS can support USB communication

- On behalf of remote experiment, we need some fixed IP address not automatic IP as DHCP. → I will ask walter how to get it. → Wireless Access Point
Problems - new

- It is difficult to implement the robot behavior.
  - Navigation (wandering): Mindstorms just provide two touch sensors and one light sensor. → our constraints
  - There are limitations to implement autonomous and intelligent behavior of robot system.
  - It is not easy to navigate wide space in the room because it is not maze using narrow paths.
  - We are now trying to various tests. Ex) only touch sensors, only light sensor and both case together: three cases.
Team meeting

- After last progress report, the regular team meeting -> two, contingency meeting -> two
  - Most of topics in meetings was implementation issues.
Task Plan

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Now  Basic System  Final System  Test  Demo

~ 3.24 (5)  ~ 3.31. (4)  ~ 4.07. (3)  ~ 4.14. (2)  ~ 4.21. (1)  ~ 4.28. (0)

Implementation

SD 1-2  SD 1-2  SD 2-2  SD 1-1  SD 2-1  SD 2-3  SD 3-1
SD 4-1  SD 4-1  SD 4-2  SD 3-2

Test

Software Test Plan,  Basic Model Test  Software Test
Hardware Test Plan.  System Test  Hardware Test

Preparation

Technology Investigation  Feasibility Experiment  Wall Setting  Environment for Demo
T-shirts, etc.

Readiness Demo  Project Demo
Software Design – SD#1

STC 1-1: To check the connection of RMI/JINI Interface between the client and the server

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Software Design – SD#2

STC 2-1: To control the robot when the robot is ready

Call services

Provide services

Remote Control

Surveillant Task

Raise Alarm

Vision Detection

STC 2-1: To control the robot when the robot is ready

RMI/JINI Interface 2-1

Basic User Interface 2-2

Detection Vision & Region

Remote Control

Surveillant Task

Vision Detection

iEJOS API

Video Transmission

Target Colors

Video Control

STC 2-1: To control the robot when the robot is ready

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Software Design – SD#3

Intruder Robot Controller

RunAway

Vision Detection

NieJS API

RS-232C/USB

Detection Vision & Region

Basic User Interface

Control robot

3-1

Not yet

3-2

3-3

Robot Camera

Implementation 50% Completed

Color Setting

Target Colors

Take Snapshot

Average Colors

Not yet

Not yet

Not yet

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Software Design – SD#4

STC4-1: To check dispatcher thread

Surveillant Robot

Two wheel drive mechanisms

RS-232C/IR

IN Channel

Out Channel

Dispatcher Thread

Main Thread

Implementation 50 % Completed

Remote Control Model

Surveillant Navigation Mode

Java TINY VM

RCX FirmWare

Sensors

Motors

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HTC1-1, HTC1-2 is testing

HTC1-1, HTC1-2 is testing
Software Design – SD#5

STC5-1: To check dispatcher thread

HTC2-1 is testing

RS-232C/IR

IN Channel

Out Channel

Dispatcher Thread

Main Thread

Intruder Navigation Mode

Runaway Navigation Mode

Java TINY VM

RCX Firmware

Sensors

Motors

Implementation 50% Completed

5-1

5-2

Not yet

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Progress status

- Actual vs plan: 50% of the whole system is completed and tested.
- From next week, we will start to integration test between all software and hardware.