Team Project: A Surveillant Robot System

Status Report: 04/12/2005

Little Red Team
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Agenda

☐ Team meeting & Problem
☐ Progress report
Team meeting

- We talked about IR tower.
- Each robot has each IR tower. If the main controller send a command to one robot only, however, two robot concurrently response the command. This is because IR signal and command does not ID to differentiate two main controller. Thus, we decide to include ID into signal.
  - Original objective of IR tower is to download program into RCX.
  - In our case, additional objective is to use signal as a tool to transmit command.
- Time goes by, physical problems is occurred rather than software problem.
- IR tower and IR signal is very sensitive to the direction. If a robot is positioned to opposite side of IR tower, robot can’t receive the signal.
The solution is to install two column or similar facility. RCX can increase the probability to receive signals from the IR.
Task Plan

- **April 12 (5)**
- **April 31 (4)**
- **May 7 (3)**
- **May 14 (2)**
- **May 21 (1)**
- **May 28 (0)**

**Basic System**
- SD 1-2
- SD 1-1
- SD 4-1

**Test**
- Software Test Plan
- Hardware Test Plan
- System Test Plan

**Preparation**
- Technology Investigation
- Feasibility Experiment
- T-shirts, etc.

**Now**

**Basic System**

**Final System**
- SD 2-2
- SD 2-1
- SD 4-2

**Test**
- Software Test
- Hardware Test
- System Test

**Demo**
- Readiness Demo
- Project Demo

*Today*
Software Design – SD#1

Remote User

Remote Control Panel

Room Live Video

Mode Selector

RMI/JINI Interface

Basic User Interface

1-1

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

Implementation 100 % Completed

1-2

STC 1-2: To check the status robot

Implementation 70 % Completed

Remote User Interface

Call services

Provide services

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Software Design – SD#2

RMI/JINI Interface

Call services

Provide services

Detection Vision & Region

Basic User Interface

Surveillant Robot Controller

Main Cam

Remote Control

Surveillant Task

Raise Alarm

Vision Detection

leJOS API

Robot Camera

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

STC 2-2: To get the detection information

STC 2-3: To have surveillant robot to wonder in the room

Control robot

Video Transmission

Target Color Setting

Live Video Camera

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Software Design – SD#3

Intruder Robot Controller

STC 3-1: To control the robot when the robot is ready

STC 3-2: To get the detection information

STC 3-3: To have surveillant robot to wonder in the room

RunAway

Vision Detection

leJOS API

RS-232C/USB

Control robot

Detection Vision & Region

Basic User Interface

Robot Camera

Implementation 50% Completed

Implementation 50% Completed

Implementation 50% Completed

Target Colors Take Snapshot Average Colors

Color Setting
Software Design – SD#4

STC4-1: To check dispatcher thread
STC4-2: To check main thread

Surveillant Robot

RCX

Remote Control Model
Surveillant Navigation Mode

Dispatcher Thread
Main Thread

RS-232C/IR
IN Channel
Out Channel

Implementation 100% Completed
Implementation 90% Completed

Java TINY VM
RCX FirmWare

Sensors
Motors

Two wheel drive mechanisms

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

STC5-1: To check dispatcher thread
STC5-2: To check main thread

Intruder Robot

RCX

HTC2-1 is testing

RS-232C/IR

IN Channel
Out Channel

Dispatcher Thread

Main Thread

5-1

Intruder Navigation Mode Runaway Navigation Mode

5-2

Java TINY VM
RCX FirmWare

Sensors
Motors

Implementation 100 % Completed
Implementation 50 % Completed

April 12, 2005
Progress status

- Actual vs plan: 80% of the whole system is completed and tested.
- This week, we will start to integration test between all software and hardware.