Team Project: A Surveillant Robot System
Development Plan 03/24

Little Red Team
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Agenda

- Deployment View
- Software Design
- Task Plan
- Task Assignment
- Robot Picture
- Development Environment
Deployment view - 1

Legend

- RCX MindStorm Robot
- Camera
- RMI/JINI Interface
- InfraRed Channel
- Camera USB
- Notebook Computer

Remote User

Surveillant Robot & Intruder Controller

Main Cam

RCX

Notebook Computer
Deployment view - 2

Legend:
- RCX: MindStorm Robot
- Camera
- RMI/JINI Interface
- InfraRed Channel
- Camera USB
- Notebook Computer

Diagram:
- Remote User
- Main Controller
- Main Cam
- Suvellient Robot Controller
- Intruder Robot Controller
- RCX
Deployment view – 3(final)

Legend

- RCX: MindStorm Robot
- Camera
- RMI/JINI Interface
- InfraRed Channel
- Camera USB
- Notebook Computer

Remote User

Surveillant Robot Controller

Main Cam

Intruder Robot Controller

April 22, 2005
Software Design – SD#1

Remote Control Panel  Room Live Video  Mode Selector

Basic User Interface

Remote Control Panel
- Remote User
- Call services

Room Live Video
- Room Live Video
- RMI/JINI Interface

Mode Selector
- Start
- Stop

1-1
RMI/JINI Interface
- Call services
- Provide services

1-2
Remote Control Panel
- Remote Control Panel
- Room Live Video

Mode Selector
- Remote control
- Surveillance
Software Design – SD#2

RMI/JINI Interface

Call services

Provide services

Detection Vision & Region

Surveillant Robot Controller

Main Cam

Remote Control

Surveillant Task

Raise Alarm

Vision Detection

IeJOS API

Control robot

Basic User Interface

2-1

2-2

2-3

2-4

Robot Camera

Target Colors
Take Snapshot
Average Colors

Video Transmission

Live Video Camera

Control robot
Software Design – SD#3

Intruder Robot Controller

- RunAway
- Vision Detection
- ieJOS API
- RS-232C/USB

Detection Vision & Region

Basic User Interface

Robot Camera

Color Setting

Target Colors
Take Snapshot
Average Colors
Software Design – SD#4

RS-232C/IR

IN Channel

Out Channel

Dispatcher Thread

Main Thread

Remote Control Model

Surveillant Navigation Mode

Java TINY VM

RCX FirmWare

Sensors

Motors

Surveillant Robot

RCX
Software Design – SD#5

- Intruder Robot
- RCX
- Intruder Navigation Mode
- Runaway Navigation Mode
- Main Thread
- Dispatcher Thread
- RS-232C/IR
- IN Channel
- Out Channel
- 5-1
- Java TINY VM
- RCX FirmWare
- Sensors
- Motors
Task Assignment (1/3)

- Chankyu Park
  - Team Leader
    - Leading a weekly meeting
    - Technical support for volunteers
  - Implementation
    - SD#1, SD#2, and SD#3
  - Preparation
    - Feasibility Experiment
    - Technology Investigation
    - Wall setting
Task Assignment (2/3)

- Seonah Lee
  - Process Manager
    - Reviewing & Improve the process
    - Documentation
  - Implementation
    - SD#1, SD#2, and SD#3
  - Testing
    - Software/Hardware Testing
    - System Testing
Task Assignment (3/3)

- Volunteers
  - Team members
    - Attending a weekly meeting
    - Doing at least 7 hours a week
  - Implementation
    - SD#4 and SD#5
  - Preparation
    - Reporting problems / issues
MindStorm Robot prototype
Development Environment

- **Hardware**
  - Lego mindstorm : production system
  - Vision Commander Camera
  - IR Tower,
  - Notebook Computer X 3

- **Software**
  - leJOS 2.1.0: lego mindstorm Java API and Tiny VM
  - Vision API : a part of leJOS.
  - Java RMI/JINI : Remote Method Invocation.
  - Eclipse : Java IDE
  - JMF : Java Media Foundation for live video transmission