Team Project:
A Surveillant Robot System

SW & HW Test Results : 04/18/2005

Little Red Team

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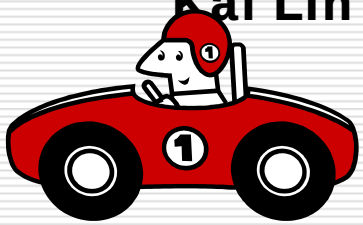
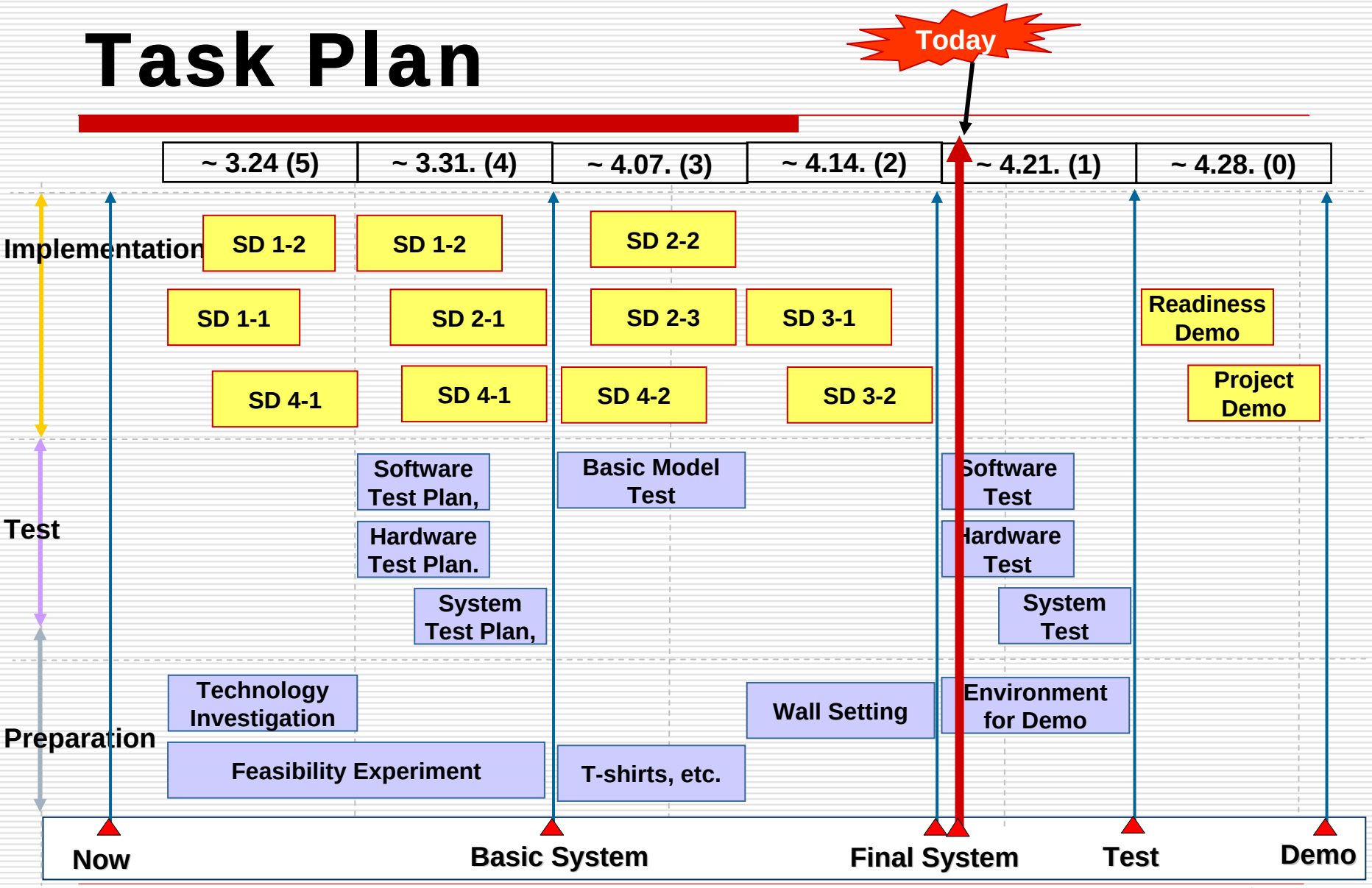
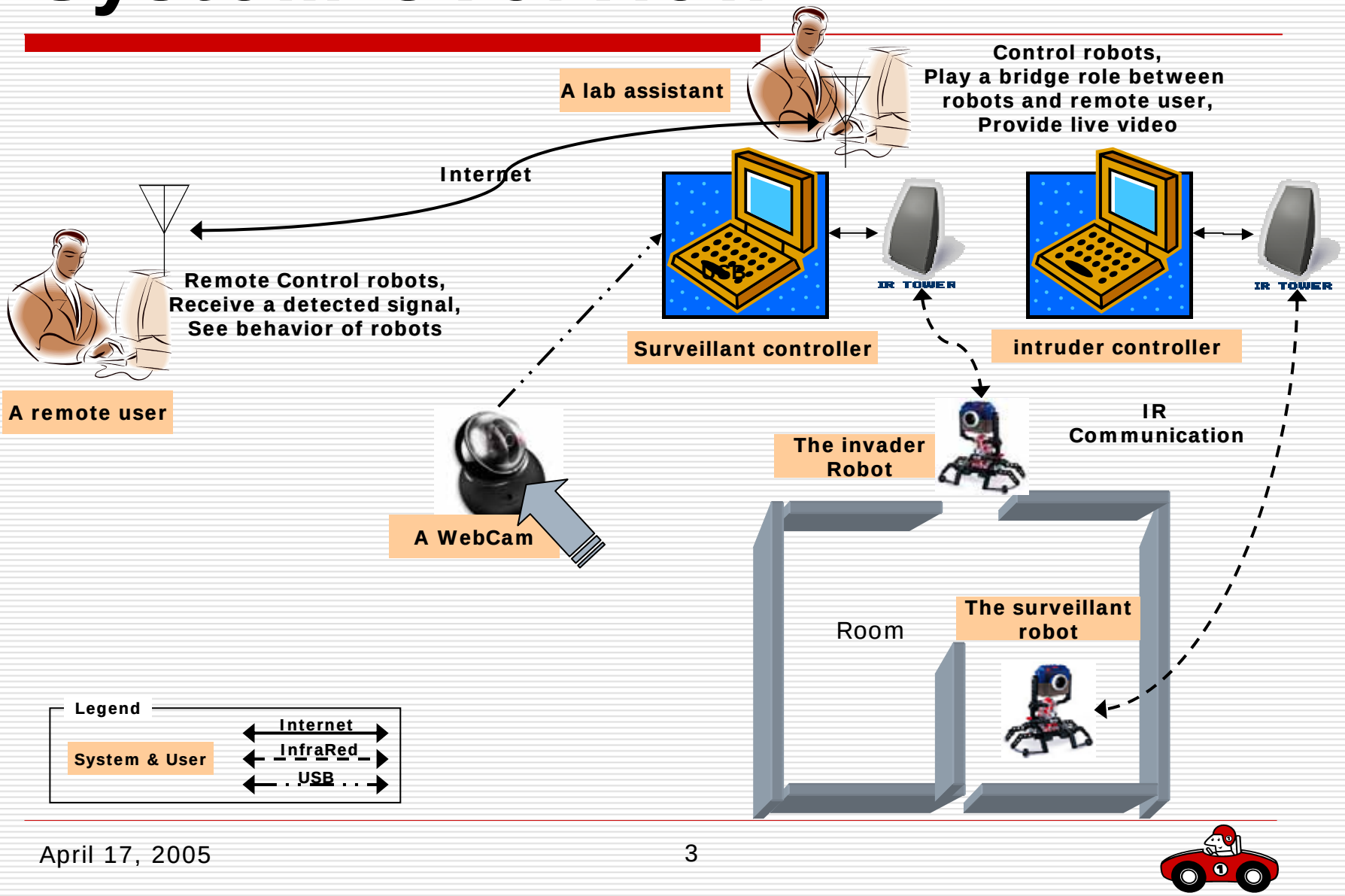


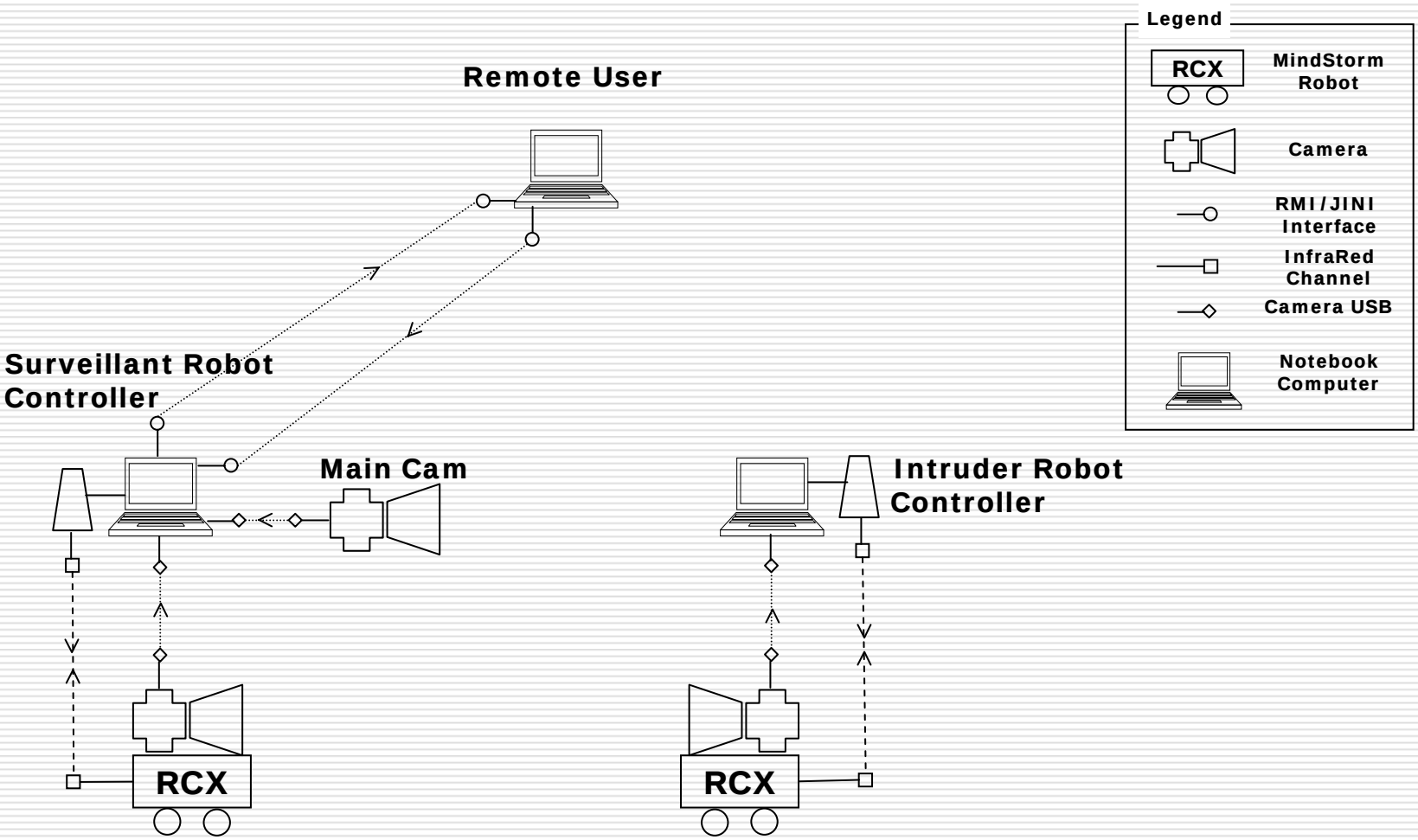
Task Plan


Today
~ 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
Readiness Demo
SD 4-1
SD 4-1
SD 4-2
SD 3-2
Project Demo
Test
Software Test Plan,
Basic Model Test
Software Test
Hardware Test Plan.
Hardware Test
System Test Plan,
System Test
Preparation
Technology Investigation
Wall Setting
Environment for Demo
Feasibility Experiment
T-shirts, etc.
Now
Basic System
Final System
Test
Demo

System Overview



Deployment view



Software Lists

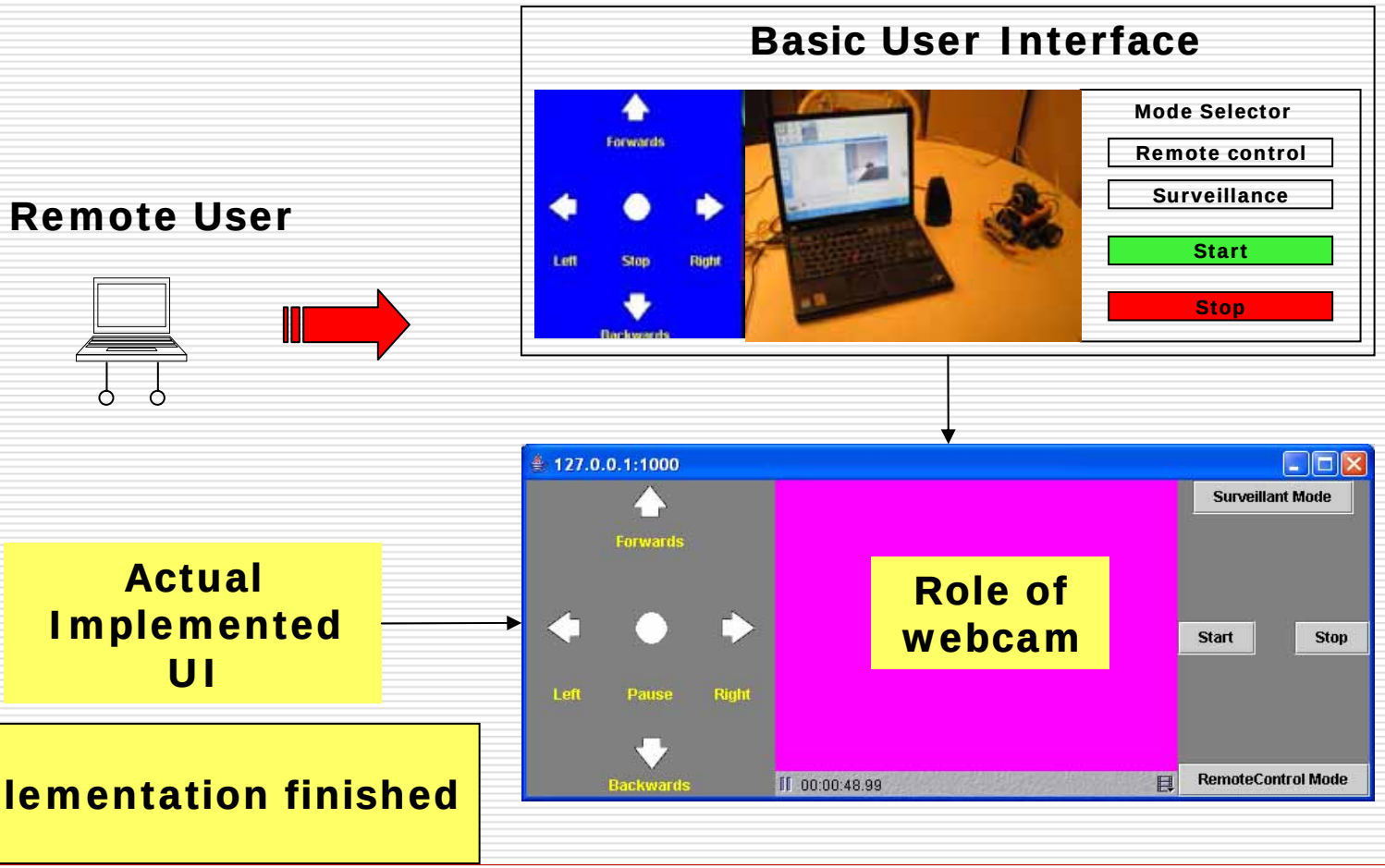
- SW Lists for Surveillant Functions
  - The remote user program & Webcam receiver/transmitter
  - The surveillant controller & vision detector
  - The embedded program of the surveillant robot
- SW Lists for Intruding Functions
  - The intruder controller
  - The embedded program of the intruding robot

ST#0: WebCam part

- STC 0-1: To view the room where the surveillant robot is, via the internet
  - Pass if the remote user sees the robot via the internet
  - Now, we directly implemented webcam program to integrate control panel for remote user

Implementation finished

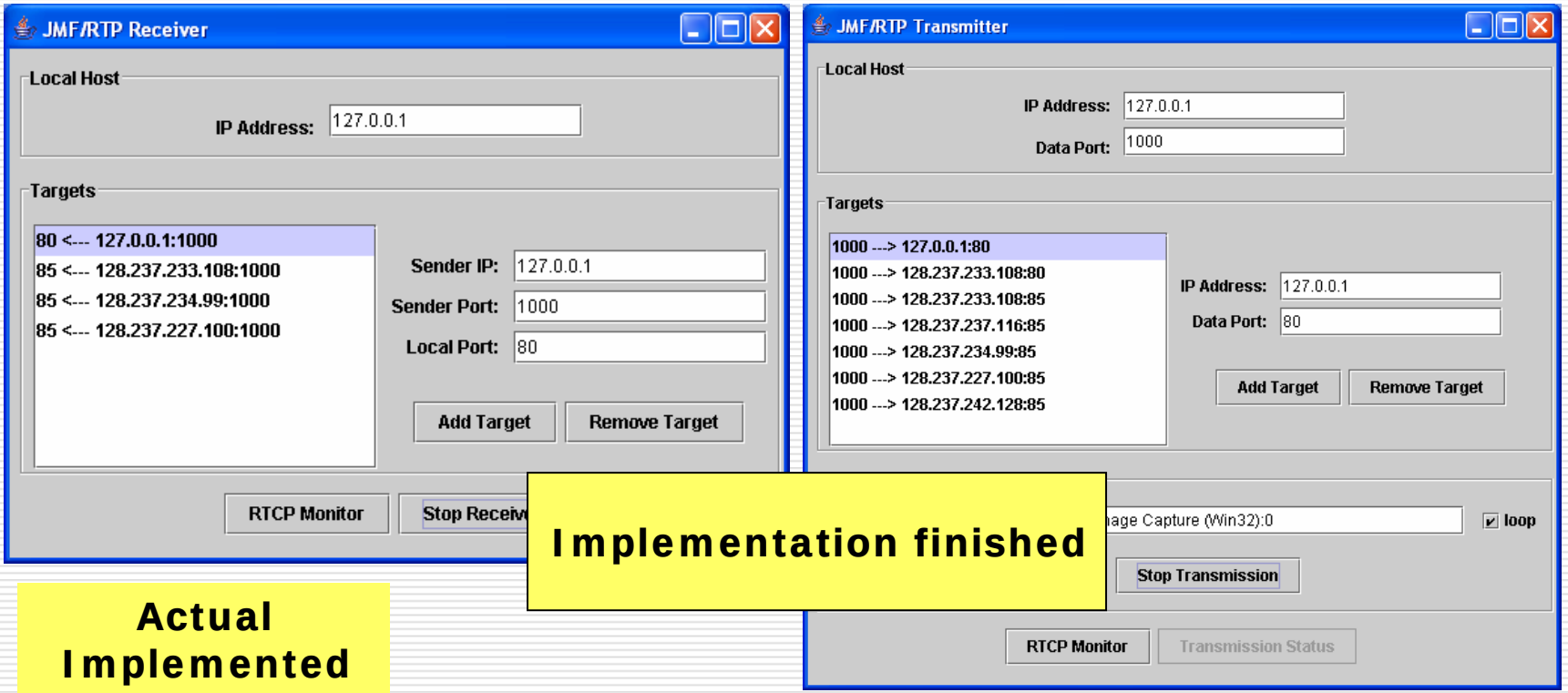
SD#1: remote user program



Receiver/Transmitter for webcam

For receiver; remote user

For video Transmitter



Implementation finished

Actual Implemented UI

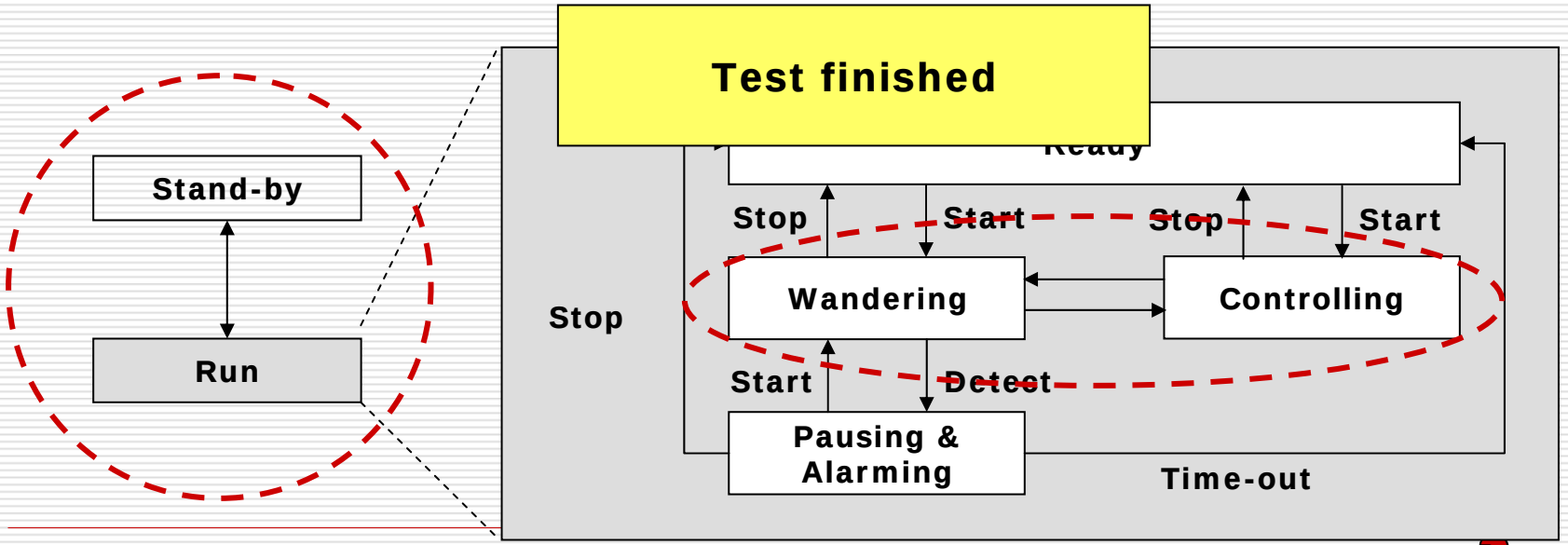
ST#1: remote user program

- STC 1-1: To check the connection of RMI/JINI Interface between the client and the server
  - Pass if the client receives the response from the server, when the remote user presses the left arrow
  - Pass if the client receives the response from the server, when the remote user presses the right arrow
  - Pass if the client receives the response from the server, when the remote user presses the forward arrow
  - Pass if the client receives the response from the server, when the remote user presses the backward arrow

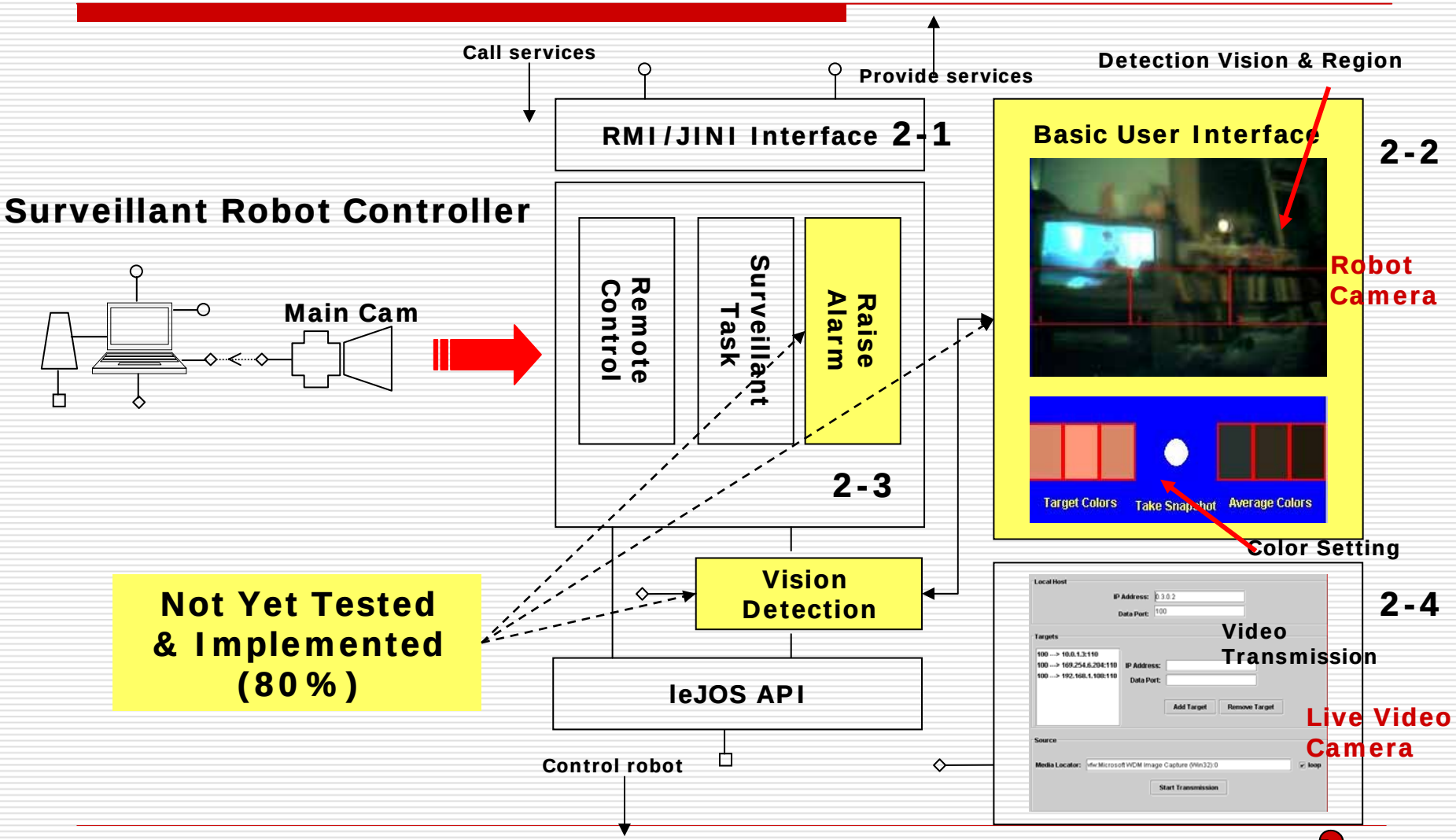
Test finished

ST#1: remote user program

- STC 1-2: To check the status of the robot
  - Pass if the client receives the information whether the robot is ready or not from the server
  - Pass if the client sends the information whether the robot is controlled or autonomous, and the server sets the mode according to the information



SD#2: Surveillant Controller



ST#2: Surveillant Controller

- STC 2-1: To control the robot when the robot is ready
  - Pass if the robot is moving left while the server program is receiving the command to move left
  - Pass if the robot is moving right while the server program is receiving the command to move right
  - Pass if the robot is moving forward while the server program is receiving the command to move forward
  - Pass if the robot is moving backward while the server program is receiving the command to move backward

Test finished

ST#2: Surveillant Controller

- STC2-2: To get the detection information
  - Pass if the server program gets the detection information when the robot detects an intruder
  - Pass if the server program have robot raise an alarm when the pr[illegible]tion

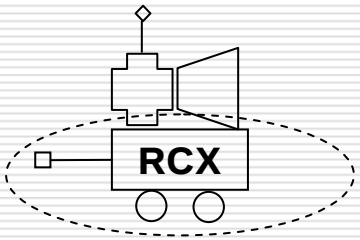
Not Yet

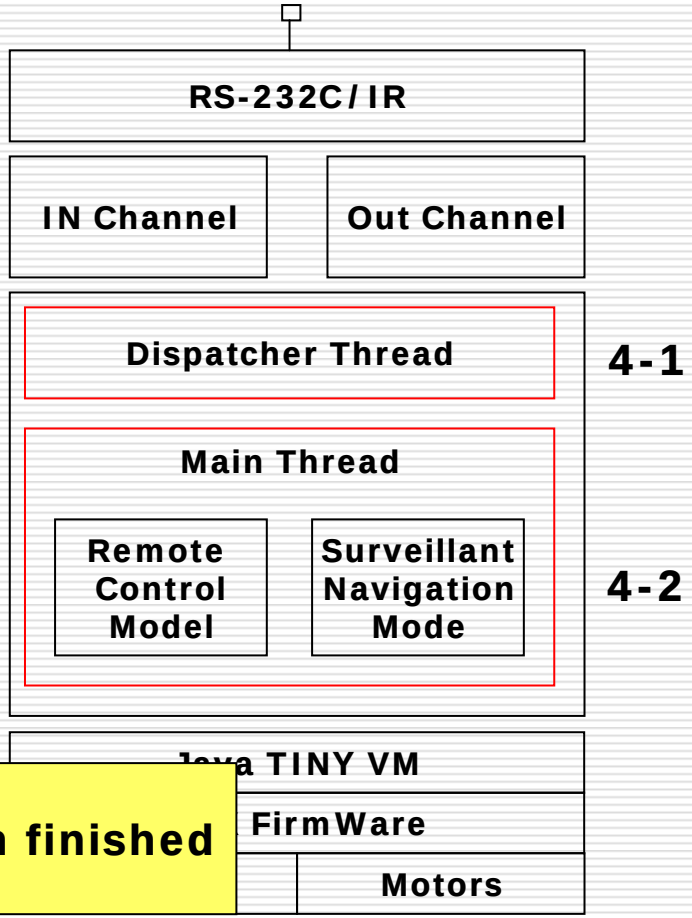
- STC2-3: To have the surveillant robot to wander in the room
  - Pass if the robot starts navigating the room within 3 seconds after the server commands to start the robot
  - Pass if the r[illegible]he room within 3 seconds aft[illegible]s to stop the robot

Test finished

SD#4: The embedded program

Surveillant Robot





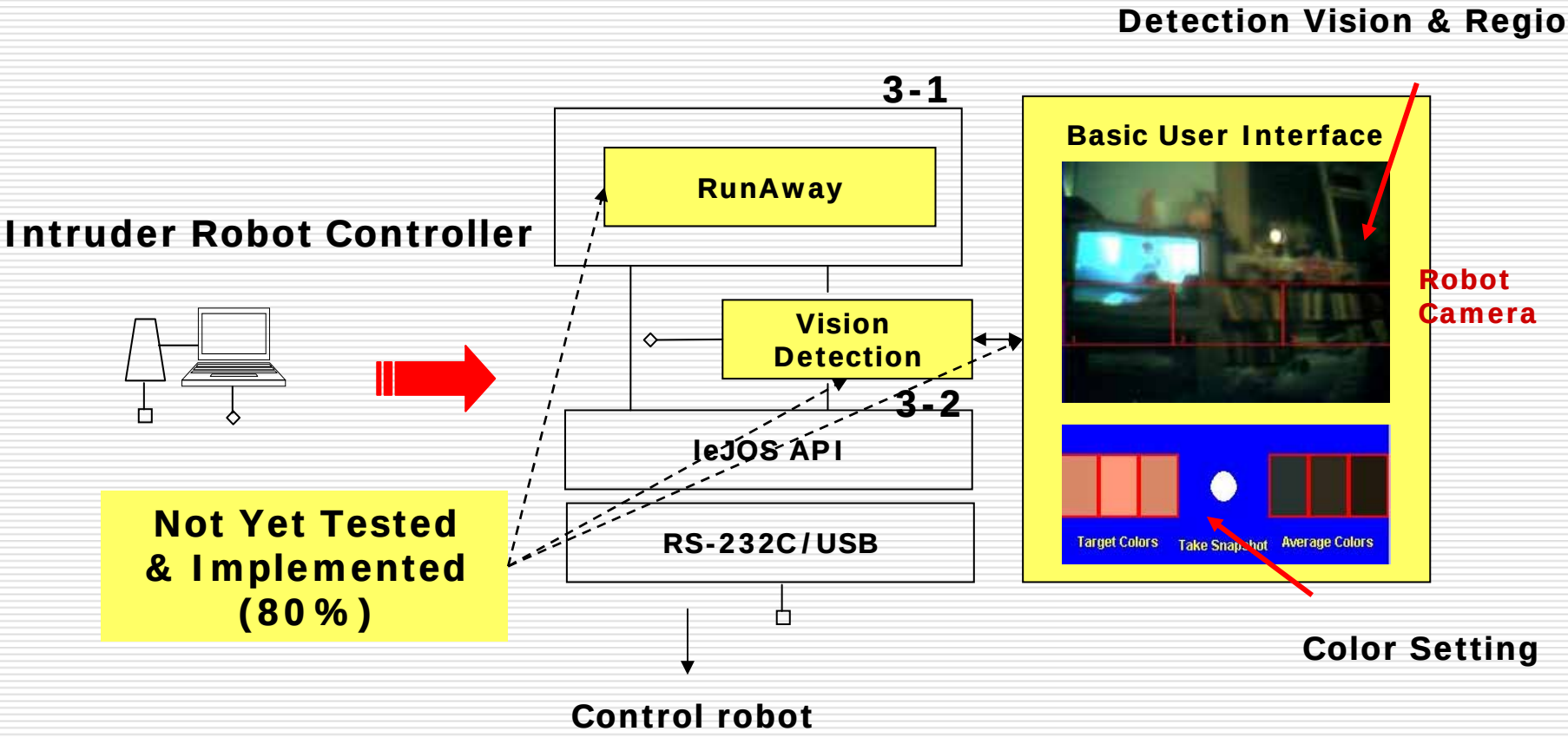
Implementation finished

ST#4: The embedded program

- STC4-1: To check dispatcher thread
  - Pass if the robot is controlled by the server program (STC2-1, STC2-2, STC2-3)
- STC4-2: To check main thread
  - Pass if the robot navigates in the way expected by the lab experimenter

Test finished

SD#3: The control program



ST#3: The control program

- STC 3-1: To control the robot when the robot is ready
  - Pass if the robot is moving left while the control program is receiving the command to move left
  - Pass if the robot is moving right while the control program is receiving the command to move right
  - Pass if the robot is moving forward while the control program is receiving the command to move forward
  - Pass if the robot is moving backward while the control program is receiving the command to move backward

Test finished

ST#3: The control program

- STC3-2: To get the detection information
  - Pass if the control program gets the detection information when the robot detects the surveillant robot
  - Pass if the [illegible]ot run away when the prograr

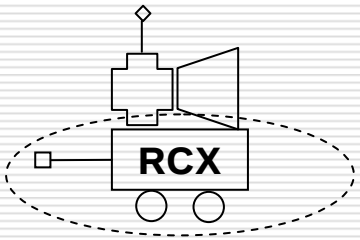
Not Yet

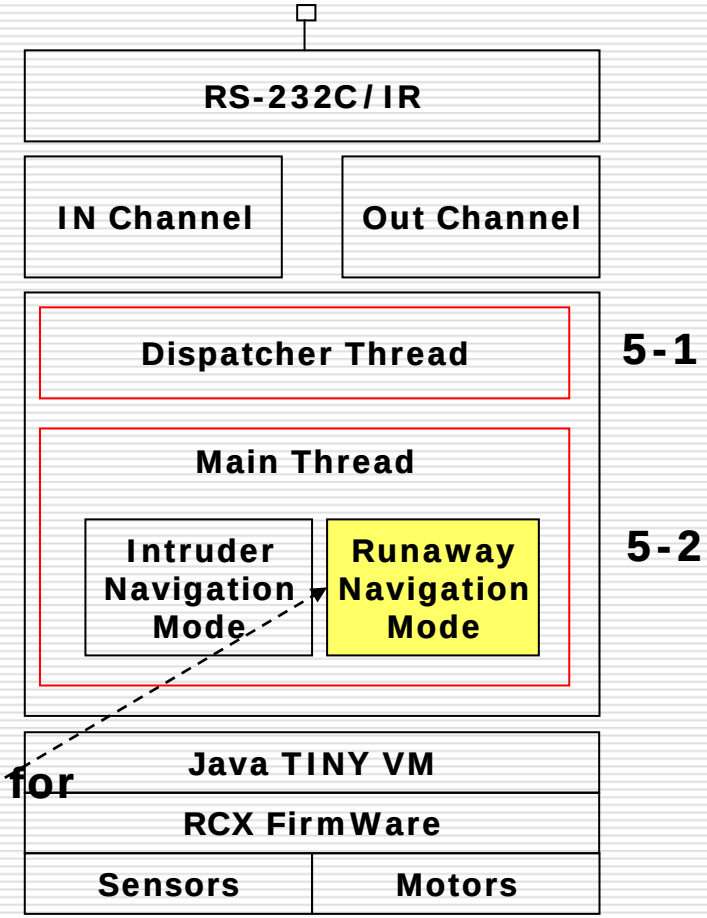
- STC3-3: To have the intruding robot to wander in the room
  - Pass if the robot starts navigating the room within 3 seconds after the server commands to start the robot
  - Pass if the r[illegible]he room within 3 seconds aft[illegible]s to stop the robot

Test finished

SD#5: The embedded program

Intruder Robot





Except for

Implementation finished

ST#5: The embedded program

- STC4-1: To check dispatcher thread
  - Pass if the robot is controlled by the control program (STC3-1, STC3-2, STC3-3)

Test finished

- STC4-2: To check main thread
  - Pass if the robot navigates expected by the lab experimenter

Test finished

Hardware Lists

- HD1: The Surveillant Robot
  - Lego mindstorms : lejOS (Java)
  - Lego mindstorms : Vision command camera
  - IR Tower
- HD2: The Intruding Robot
  - Lego mindstorms : lejOS (Java)
  - Lego mindstorms : Vision command camera
  - IR Tower
- HD3: The WebCam
  - Logitech Quickcam Camera
- HD4: Wall parts

Hardware Lists

- HD5: A remote PC
- HD6: Surveillant controller PC
- HD7: Intruder controller PC

The Surveillant Robot

- HTC1-1: To change its direction
  - Pass if the surveillant robot changes the direction when it detects a wall by using touch sensors **and light sensc**

Test finished

- HTC1-2: To wander in the room
  - Pass if the robot moves around the every room without trou

Test finished

- HTC1-3: To detect the intruding robot
  - Pass if the robot raises an alarm in 5 seconds when the intruding robot is in the same room

Not yet

The Intruder Robot

- HTC2-1: To intrude into the room
  - Pass if the robot comes into the room where the surveillant robot is controlled by a lab assistant

Not Yet

- HTC2-2: To detect the surveillant robot
  - Pass if the robot begins to move another direction from the surveillant robot in 5 seconds after the two robots are in the same room
  - Pass if the robot shows runs away behavior

Not Yet

The WebCam

- HTC3-1: To show the room where the robot is
  - Pass if the WebCam shows the room in their computers.

Test finished

A remote PC

- HTC5-1: To check the environment of the remote PC
  - Pass if the remote user program is installed in the computer, and operates properly

Test finished

A surveillant controller

- HTC6-1: To check the environment of the surveillant controller
  - Pass if RMI server program is installed in the computer, and operates properly
  - Pass if vision detector is installed in the computer, and operates properly

Test finished

Another control computer

- HTC7-1: To check the environment of the control computer
  - Pass if RMI server program is installed in the computer, and operates properly
  - Pass if vision detector is installed in the computer, and operates properly

Not Yet

summary

- Last week, we had one integration test at the robot lab for 4 hour.
- There are some problems as we expected.
  - Navigation
  - Color detection for light sensor
  - IR tower sensitivity
  - Demo environment
- Results so far : 90% of the whole system is implemented, and 60% of whole tests is tested.
- this week, we have the plan to do two integration test and demo preparation at the robot lab