Team Project:
A Surveillant Robot System

System Test Plan

Little Red Team

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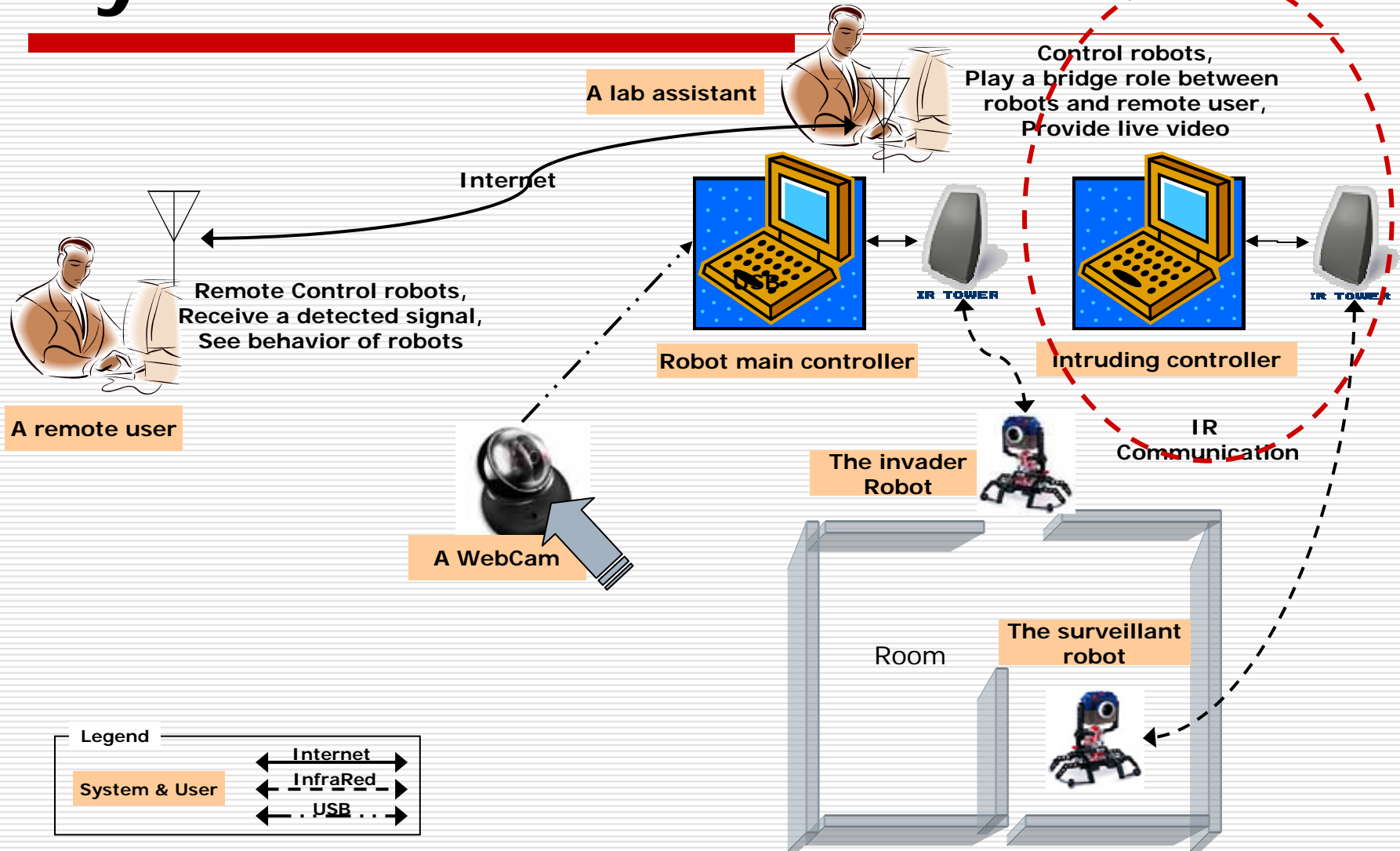
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System Overview

Control robots,
Play a bridge role between
robots and remote user,
Provide live video

A lab assistant

Internet

Remote Control robots,
Receive a detected signal,
See behavior of robots

A remote user

USB

Robot main controller

IR TOWER

Intruding controller

IR TOWER

IR Communication

The invader Robot

A WebCam

The surveillant robot

Room

Legend

	Internet
System & User	InfraRed
	. USB . .

Test Environment

- Hardware
  - Notebook Computer X 3
  - The surveillant robot, The intruding robot
  - Vision Commander Camera X 2
  - IR Tower X 2

- Software
  - WebCam32 S/W Client & Server
  - The client program for the surveillant robot
  - The server program for the surveillant robot
  - The control program for the intruding robot
  - The embedded program of the surveillant robot
  - The embedded program of the intruding robot

A Remote PC (1/4)

□ Case 1: To view the room where the surveillant robot is via the internet

■ Pass if the remote user sees the robot via the internet

□ Case 2: To check the status of the robot

■ Pass if the remote user checks the mode showing if the robot is ready or not

A Remote PC (2/4)

- Case 3: To control the robot when the robot is ready
    - Pass if the robot is moving left while the remote user is pressing the button showing an arrow directing left
    - Pass if the robot is moving right while the remote user is pressing the button showing an arrow directing right
    - Pass if the robot is moving forward while the remote user is pressing the button showing an arrow directing forward
    - Pass if the robot is moving backward while the remote user is pressing the button showing an arrow directing backward

A Remote PC (3/4)

- ☐ Case 4: To command the surveillant robot to wander in the room
  - ■ Pass if the robot starts navigating the room within 3 seconds after commanding

- ☐ Case 5: To command the surveillant robot to stop wandering in the room
  - ■ Pass if the robot stops navigating the room within 3 seconds after commanding

A Remote PC (4/4)

☐ Case 6: To be notified by the surveillant robot
  - ■ Pass if the remote PC raises an alarm within 10 seconds after the surveillant robot detects an intruder robot

☐ Case 7: To command the surveillant robot to stop raising the alarm
  - ■ Pass if the robot stops raising the alarm within 3 seconds after commanding
  - ■ Pass if the remote PC stops raising the alarm within 3 seconds after commanding

The Surveillant Robot (1/2)

- ☐ Case 8: To wander in the room
  - ■ Pass if the robot moves on the line, turn back at the end of line, and moves again, to monitor the every room without troubles in 5 minutes
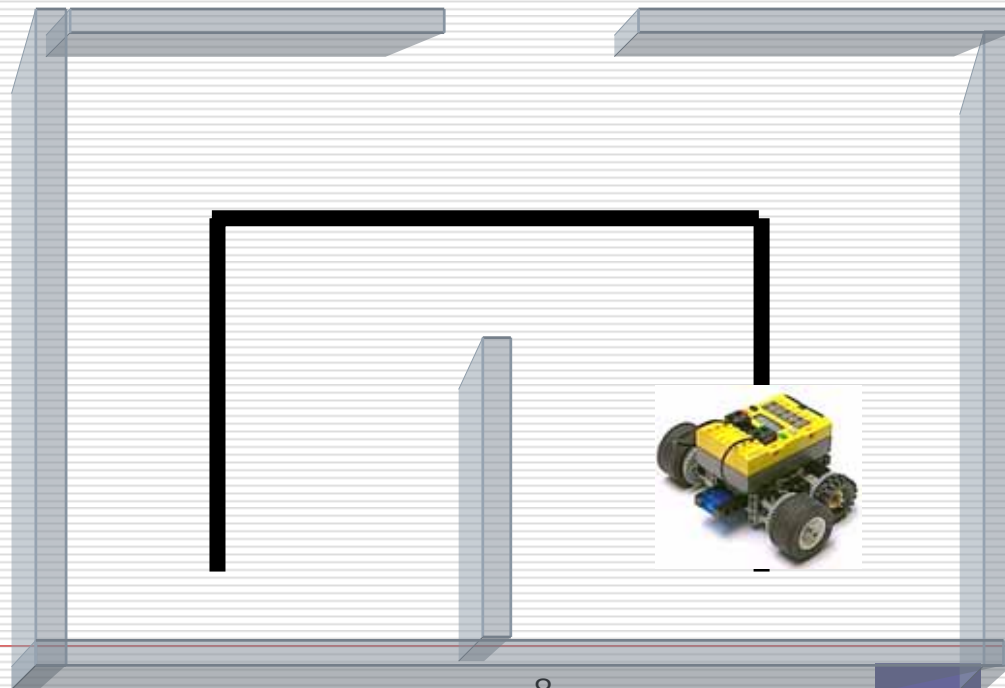
The Surveillant Robot (1/2)

☐ Case 9: To change its direction
  ■ Pass if the surveillant robot changes the direction when the robot bumps into a wall

☐ Case 10: To detect the intruding robot
  ■ Pass if the robot raises an alarm in 5 seconds if the intruding robot comes into the same room, while the surveillant robot is wandering for 5 minutes

The Intruder Robot (1/1)

□ Case 8: To intrude into the room

  ■ Pass if the robot comes into the room where the surveillant robot is, controlled by a lab assistant

□ Case 9: 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 runs away to exit from the room in 60 seconds after detecting the surveillant robot