

EX-Bots

Map It Once and Use It Forever.

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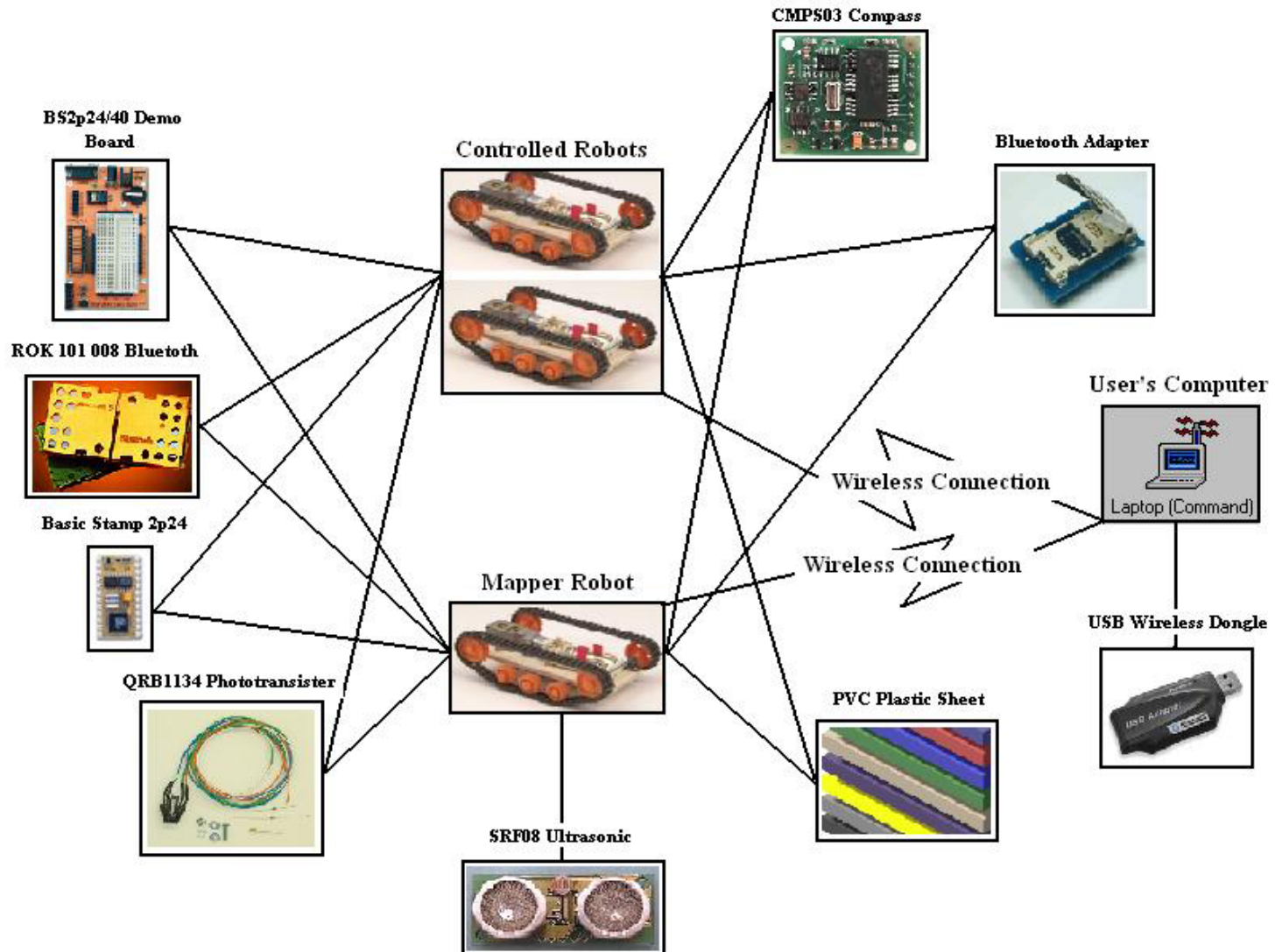
Roadmap

- Introduction to the project
- Robotics
- Communications
- User Interface/Control
- Conclusion
- Questions

Introduction

- Introduce project
 - Incentive
 - Time
 - Money
 - Interesting concept
 - Goals
 - Follow standards
 - Create a base for bigger more applicable applications

System and Robotics



Communications

Sensor Inputs (1-6) (Time Measurement)	Compass Direction (Number)	Distance Travelled (Integer)
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Bluetooth module communicates with USB Dongle via
2.4GHz frequency signals

Communications II

Robot	State	Packet Sent	Meaning
Unknown	Startup	1 in Compass (rest 0's)	Identify as Mapper
Unknown	Startup	1 in Distance (rest 0's)	Identify as Controlled
Mapper	Startup	1, then 0's	Located in Position 1
Mapper	Startup	0, 1, then 0's	Located in Position 2
Mapper	Startup	0, 0, 1, then 0's	Located in Position 3
Mapper	Mapping	Any	Data to be used for mapping
Controlled	En Route	All 1's	Reached Destination
Controlled	En Route	All 0's	Stuck - Error!

Robot	State	Packet Received	Effect
Mapper	Startup, Idle	All 1's	Start Mapping
Mapper	Mapping	All 0's	Stop Mapping
Mapper	Idle	Alternating, start w/ 0	Change to Controlled Robot
Controlled	Idle	Any	Start moving to destination
Controlled	Idle	Alternating, start w/ 1	Change to Mapper Robot (If originally identified as Mapper)

User Interface

- Buttons :

Robot 1		Robot 2		Robot 3
Mapper		Mapper		Mapper
Controlled		Controlled		Controlled
Start		Start		Start
Stop		Stop		Stop
	Reset		Quit	

User Interface

Buttons

- Robot#: select a robot
- Mapper: use map the area
- Controlled: identify it is a controlled robot

User Interface

Buttons

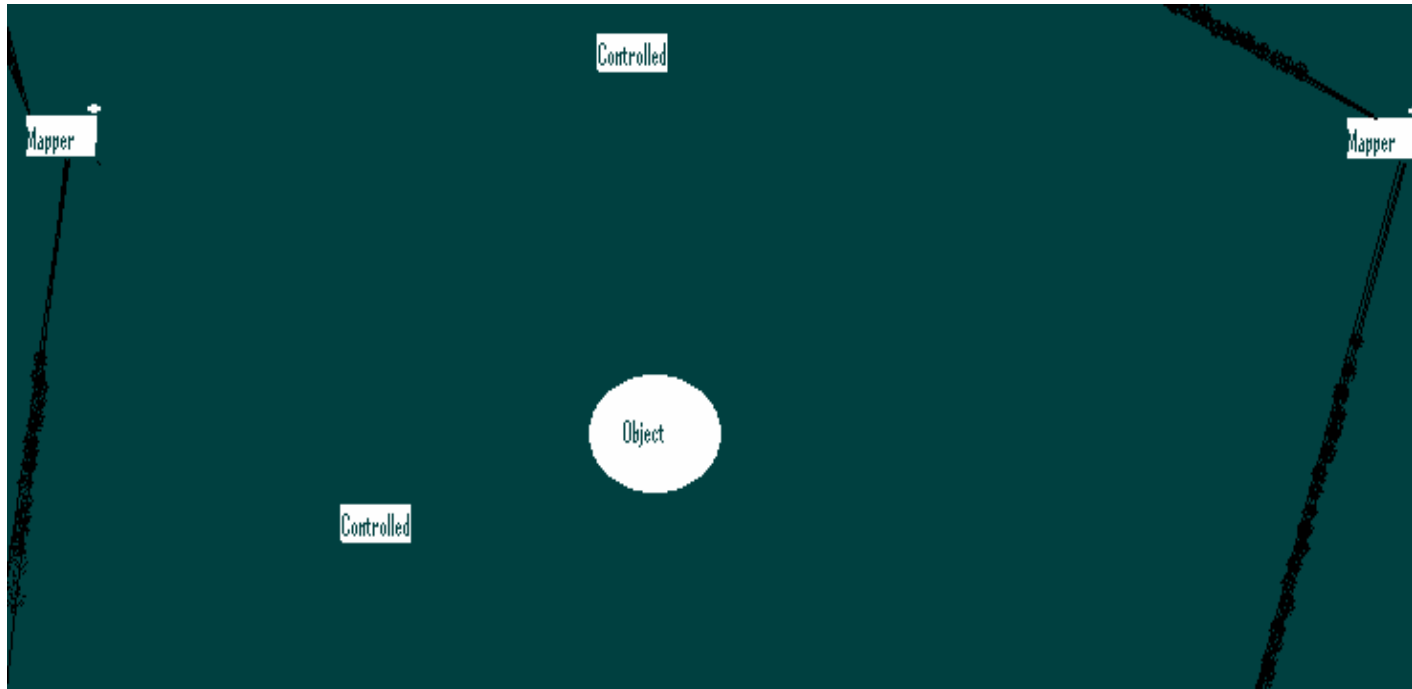
- Start: activate robot
- Stop: stop robot
- Reset: reset the GUI except places of robots
- Quit: exit program

User Interface

- The default selected values for Robot 1, 2 and 3 will be the Mapper, Controlled and Controlled respectively.

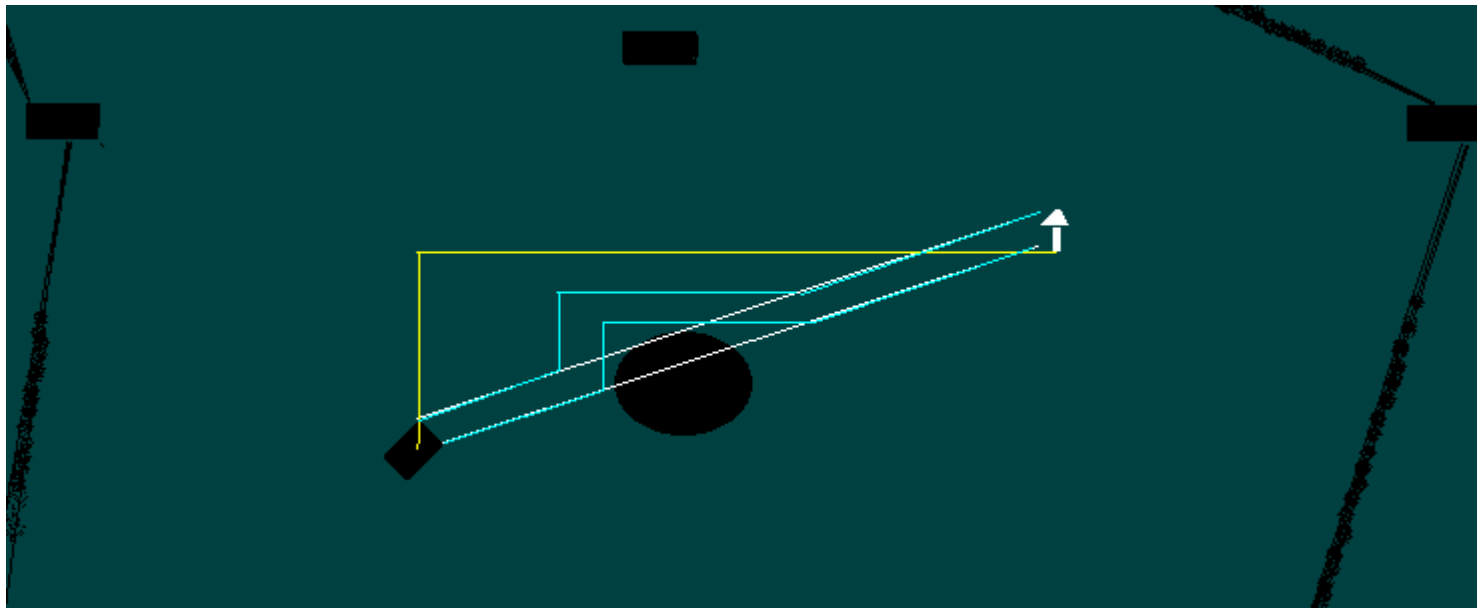
User Interface

- Actual places of objects and robots



User Interface

- Representations and calculations on the laptop



Conclusions

- The four-fold Conclusion
 - Mastry of Robotics and sensors
 - Mastry of Fast and Effective Wireless Communications
 - Mastry of Path Finding Algorithms
 - Usage of standards for all parts of the projects
 - Bluetooth v1.0B
 - IIC Bus

Questions??