

# **Team ENGELBART Final Presentation**

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25<sup>th</sup> March 2013



# **PRESENTATION OUTLINE**

- **DEMONSTRATION**
- **OVERVIEW OF THE SOFTWARE SPECIFICATIONS**
- **EVALUATION**



# TEAM HIERARCHY

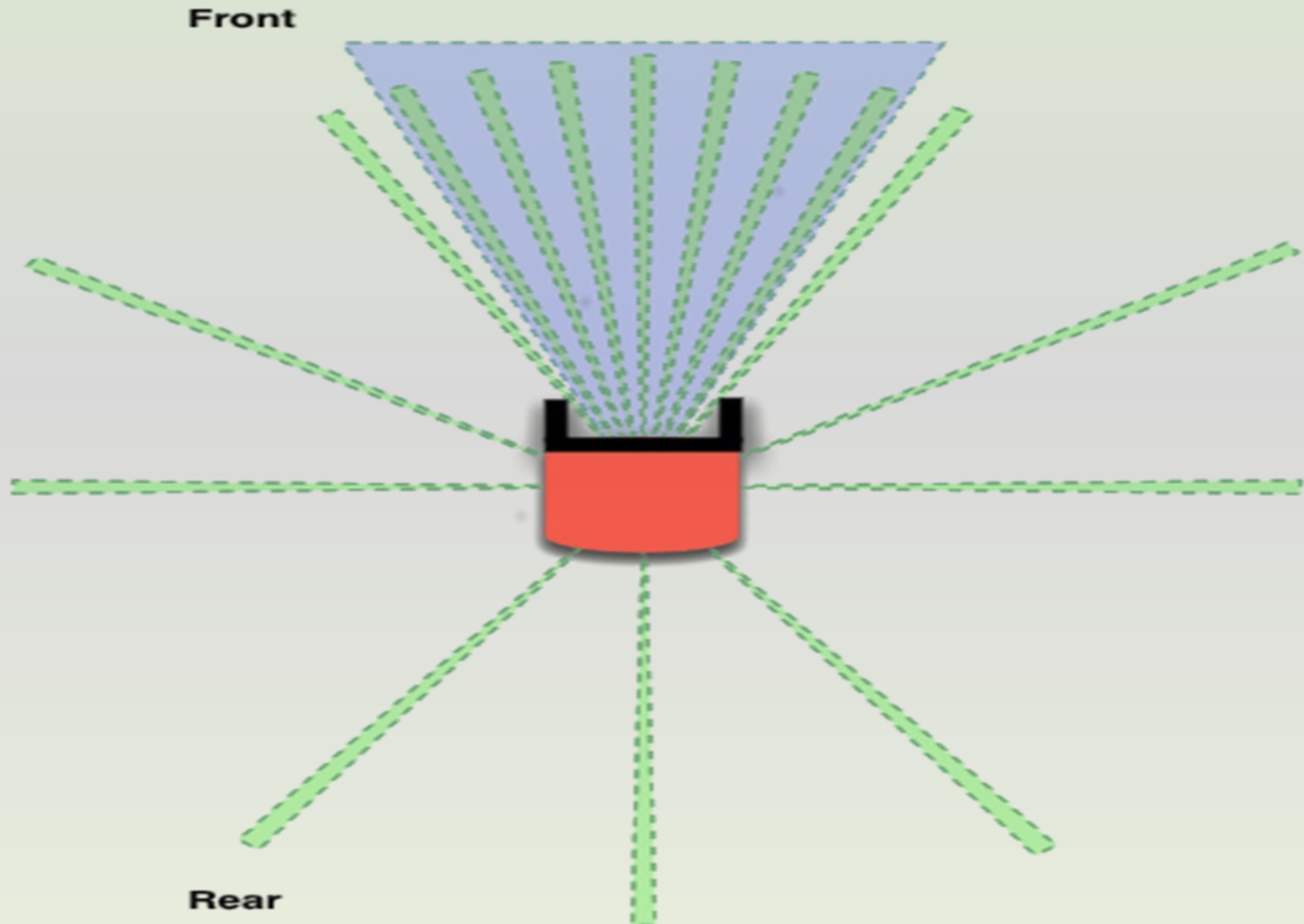
**Programming Team**

**Reporting Team**

# ROBOT SPECIFICATIONS

## Robot Sensor Layout

-  *Fiducial sensor*
-  *Ranger sensor*



# MAPPING & NAVIGATION REQUIREMENTS OVERVIEW

Requirements Description	Completeness
Maintain an accurate representation of the real world	Implemented
Accurately locate garbage objects on the map	Implemented
Use sensor data to build a map of the robot's immediate environment	Implemented
Identify unexplored areas on the map	Implemented
Compute path between the robot's current location and the target location	Implemented
Follow planned paths	Implemented
Identify when all accessible areas have been explored	Implemented
Generate visual representation of the map representation	Implemented
Avoid obstacles	Partially implemented
Detect and recover from collisions	Implemented

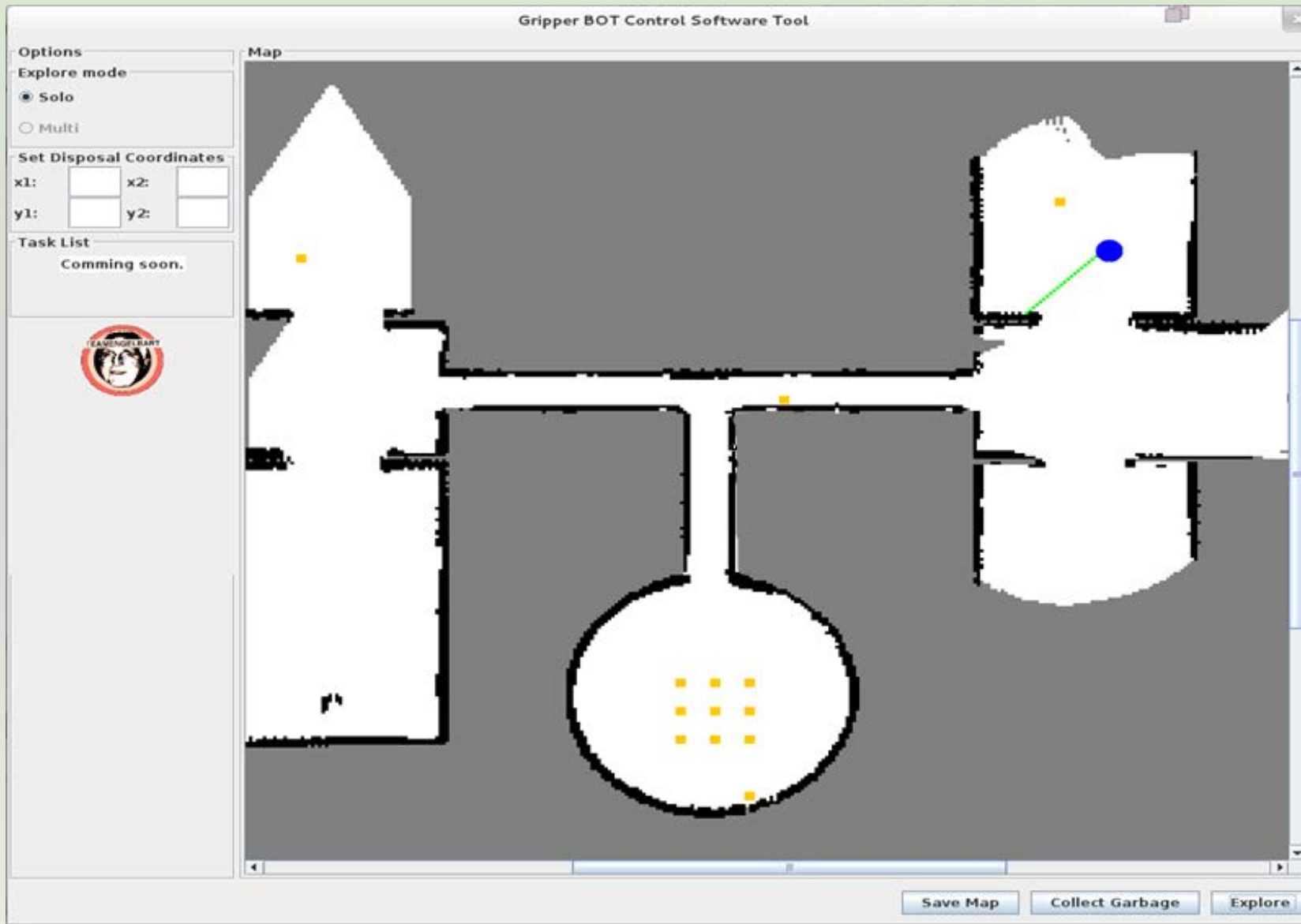
# GARBAGE COLLECTION TASKS OVERVIEW

Requirements Description	Completeness
Maintain a list of garbage objects to be collected	Implemented
Select a garbage object to be collected	Implemented
Approach and pick up the garbage object	Implemented
Compute the shortest path from the robot's current position to garbage object's location	Implemented
Compute the shortest path from the garbage object's location to the designated collection area	Implemented
Identify location of the garbage collection area	Implemented

# OPERATOR'S INTERFACE

Requirements Description	Completeness
<b>–explore – must make the robot to explore the whole map and produce an internal representation of the map</b>	Implemented
<b>–map filename – should output a graphical representation of the map at the moment of the operation call (if no filename is provided use default [output] filename)</b>	Implemented
<b>–collect x1,y1,x2,y2 – should result in all garbage objects contained inside the boundaries of this rectangle to be collected and moved to the designated garbage collection area</b>	Implemented
<b>–solo – switch program to solo mode where only one robot operates and all other robots remain at their current position at the moment of the operation call</b>	Implemented
<b>–multi – switch to multi-mode (default mode) in which all robots should work together</b>	Not implemented
<b>Graphical User Interface support</b>	Implemented
<b>support multiple instructions at once – where operations are executed one after the other</b>	Implemented
<b>Real time visual representation of the internal map representation supported by all commands</b>	Implemented

# GRAPHICAL USER INTERFACE





# EVALUATION

## Successfully met deadlines

- The team has met all official deadlines
- Internal deadlines were also well organised

## Strong team spirit and professional working attitude

- Members worked well together as a team
- Individual professionalism was seen
- Overcame external issues, e.g. Player/Stage environment, restricted lab access

# EVALUATION

- Excellent use of code version control and project management tools
- The programming team made full use of Git
- Project schedule and individual tasks were created on project management tool
- More fluid team structure can be adopted in the future
- Programming team and Reporting team could cover each other
- Better time management
- Could have started the implementation in Semester one
- Could have made better use of weekends

DEMO

Q & A

THANK YOU!