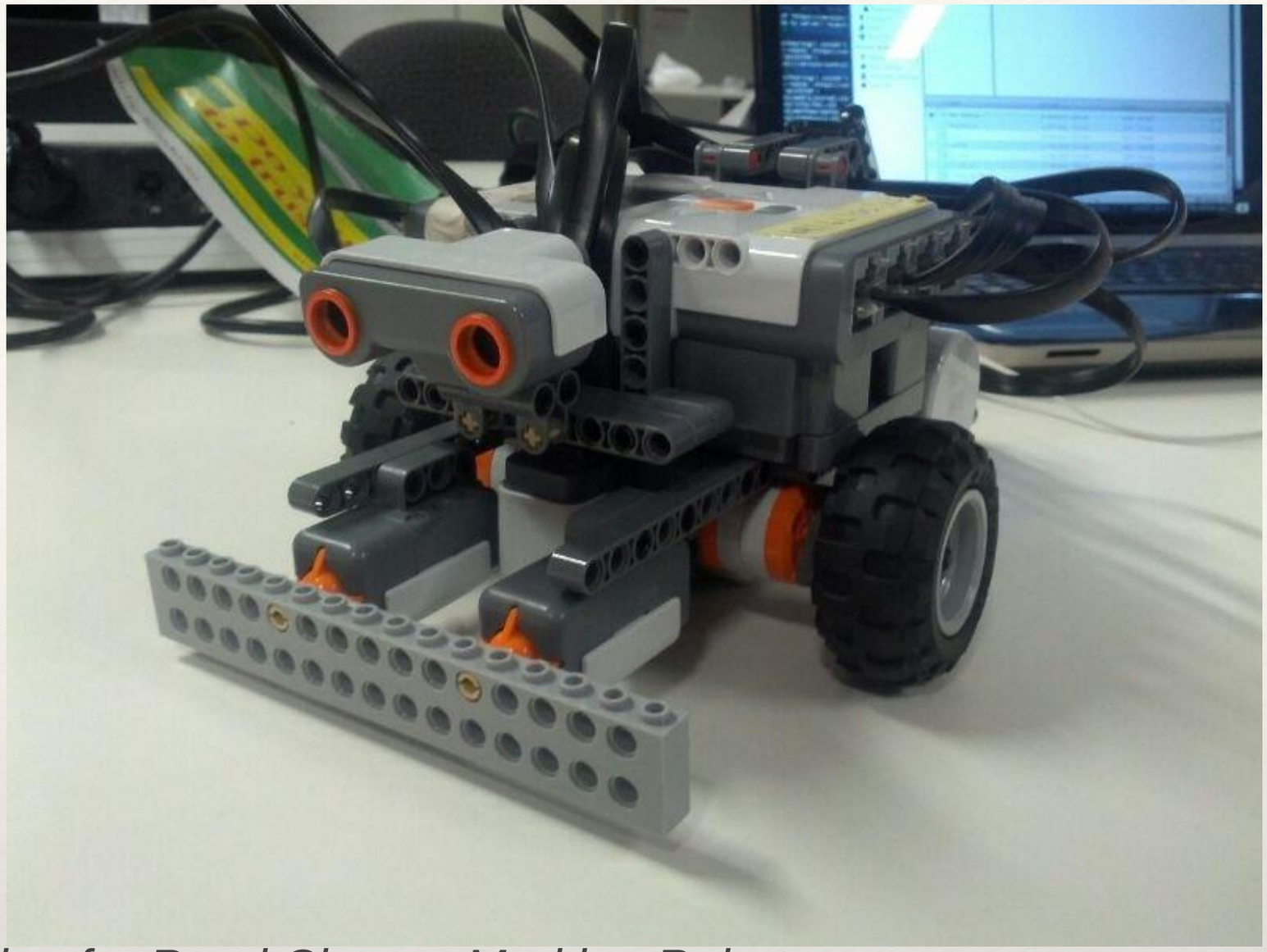


Final presentation for Road Closure Marking Robot Project

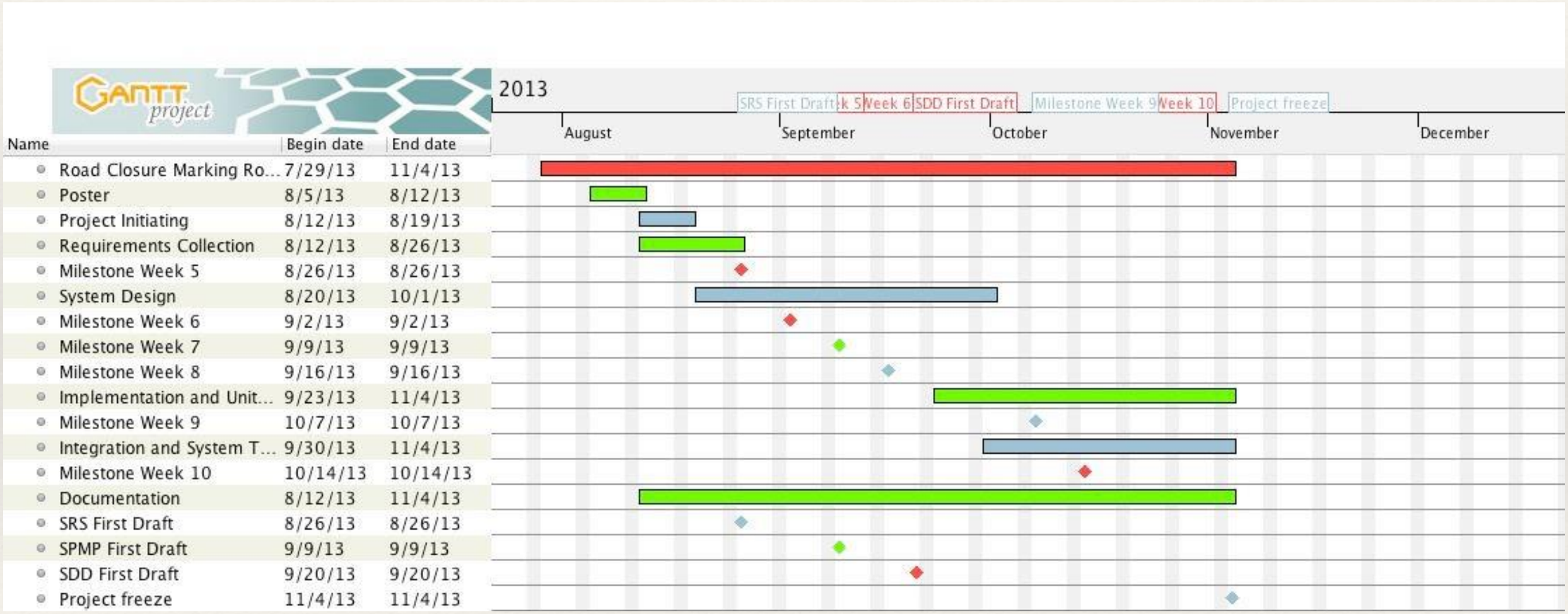
SEP Group 2 presentation

“Coding Pharaohs”:
Abdulaziz Alhulayfi
Yu Hone
Jianqiu Li
Matthew Nestor
Yifei Pei
Bowen Tao

Outline

- Introduction of the Project Progress
- Introduction of the Product
- What we learnt from the Project

Look at the Schedule first



Detailed progress

- Week 3 and Week 4 to collect requirements
- Week 5 started to do milestones until Week 10
  - Week 5-Week 8 milestones were good performed
  - Week 9-Week 10 milestones were partial achieved
- Week 5 till Mid-break was the design phase
- For the rest of time we programming and programming and programming, and also testing ~~~

Visible Outcomes

- SRS_First_Draft: Jianqiu Li and Yu Hong
- SPMP_First_Draft: Abdulaziz Alhulayfi and Yifei Pei
- SDD_First_Draft: Matthew Nestor and Bowen Tao
- Final documentation and User Manual: Abdulaziz Alhulayfi
- Testing Reports: everyone
- and the ***whole system***

Resources allocation

- People
  - People did what their responsibility lies
  - Yu and Matt coded magnificently
- Time
  - A big chunk of time which was approximately 30% of the whole project spent on learning new things
  - In the perspective of the project timeline, about half of the time was spent on design the system due to inexperience

Risk Management

- Six types of risks
  - Technology
  - Tool
  - Team
  - Requirement
  - Organisation
  - Estimation

Risk Management Plan

- Probability: Low/Moderate/High
- Effect: Tolerable/Moderate/Serious/Catastrophic
- Strategy: Steps to be followed to avoid risk occurrence
- Risk Indicator: Circumstances that lead to risk occurrence

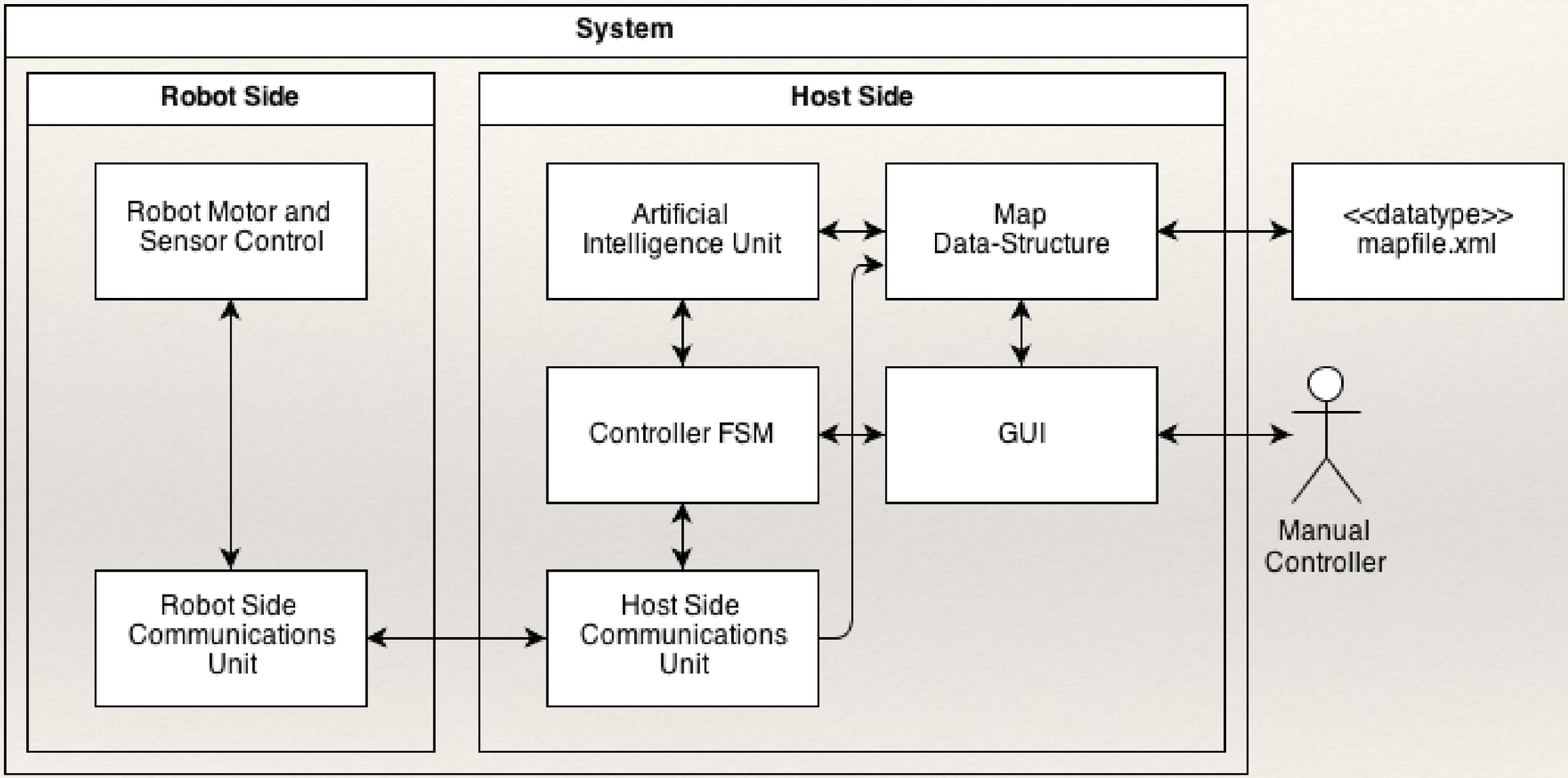
Quality Assurance and Testing

- Provisional activity: we made a detailed risk management plan and V&V process to ensure things are done within frames
- Standards: Documentation followed the rubrics provided by lecturers and the standard for Program is to pass tests
- Testing: Make sure the program can achieve the designed functionality and the collected requirements

Testing

- Unit testing
- System testing
- Plan and implementation

The product

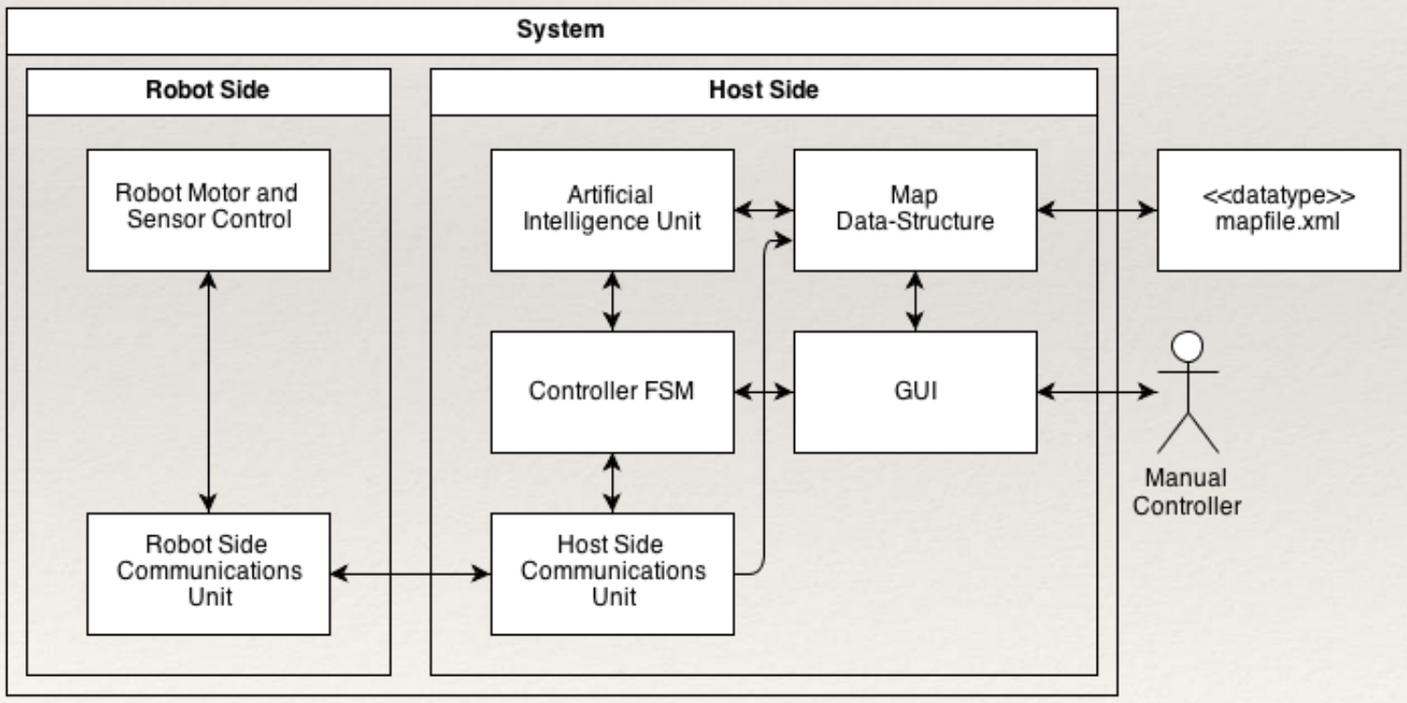

System
Robot Side
Host Side
Robot Motor and Sensor Control
Artificial Intelligence Unit
Map Data-Structure
<<datatype>> mapfile.xml
Controller FSM
GUI
Manual Controller
Robot Side Communications Unit
Host Side Communications Unit

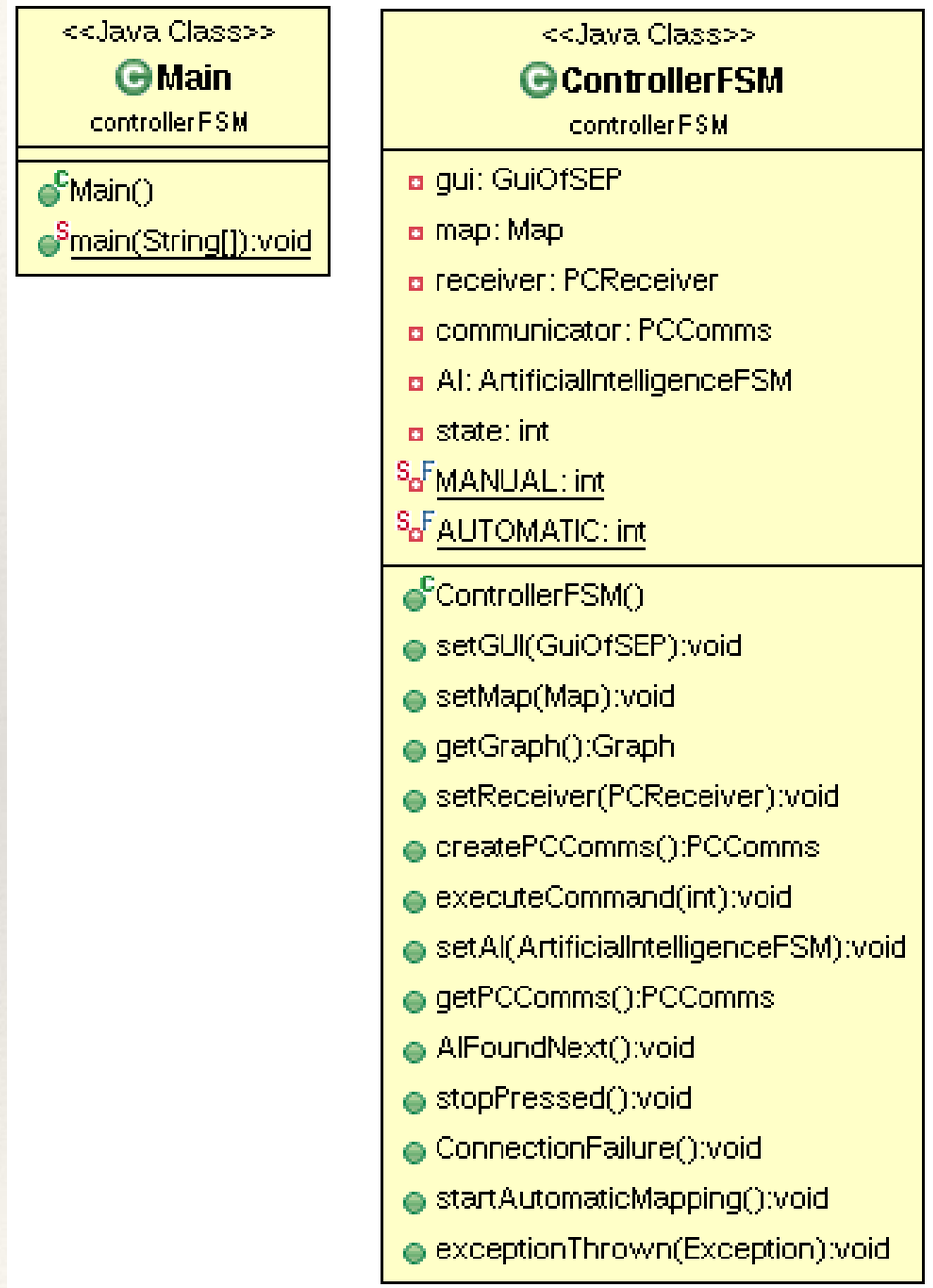
Brief summary of requirements

- The terminal goal: to mark road closures by robot on map
- Host side and Robot side requirements
  - Host : GUI, manual control, emergency stop, display, save, load map, communication message.
  - Robot : Automatic movement, detecting road and intersections, identify obstacles and disaster zone
  - Safety and others

Brief summary of architecture

1. Overview
2. Highest level architecture uses MVC pattern
3. Pipe-and-filter for remote control
4. Selective Repeat for the communication pipeline
5. Finite State Machine for the control of robot events
6. Graph to manipulate the AI





Major features of product

- Remote control
- AI and AI view
- Map update
- Selective Repeat for the COMMS

What can be improved

- The project phases and time frame was not good defined
- We spent too much time on system design phase which should have been done before mid-break
- Architecture ought to be subject to change, but the top level framework should be early defined
- Major mistake: data structure definition delayed

What can be improved

- Quality control of the project did not consider time constraints
- The user interface did not primarily achieve the expected quality. However it took too much time for us to redefine it.
- Most goals did not have clear deadline of reasonable quality delivery, which delayed the whole project

What we can improve

- Risk management plan was detailed and sufficient, but the execution of risk management lacks of practice
- We can’t keep a sheet of risk management plan in hands. Due to the poor experience in real project management, we cannot identify the risks immediately when it occurs.

What can be improved

- People need time to adjust the status of working in a team and get familiar with teamwork conventions
- All our group members are deadline-oriented workers, who are likely to rush in final hours

Future?

- Start to learn early, design early, and communicate much more frequently

Thanks you all.
Any Questions?

“Knowledge is power”

–Francis Bacon