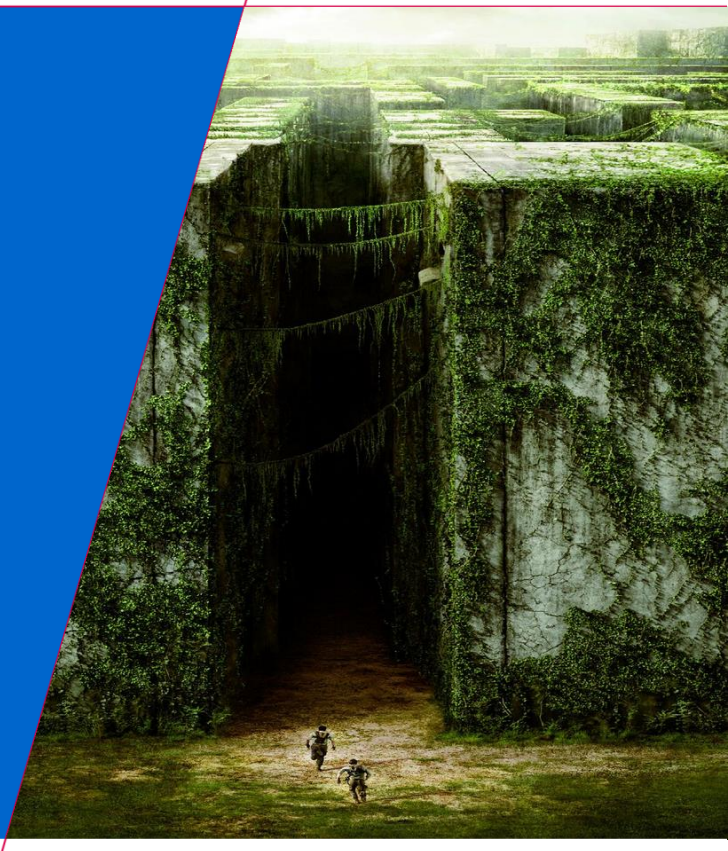
Embedded Motion Control - 4K450

June 24, 2015

The A-maze-ing Challenge



1. Composition Hierarchy
2. Method: Navigation
3. Method: Special Situation
4. Method: Mapping the Maze
5. Things We've Learned!

Group #2

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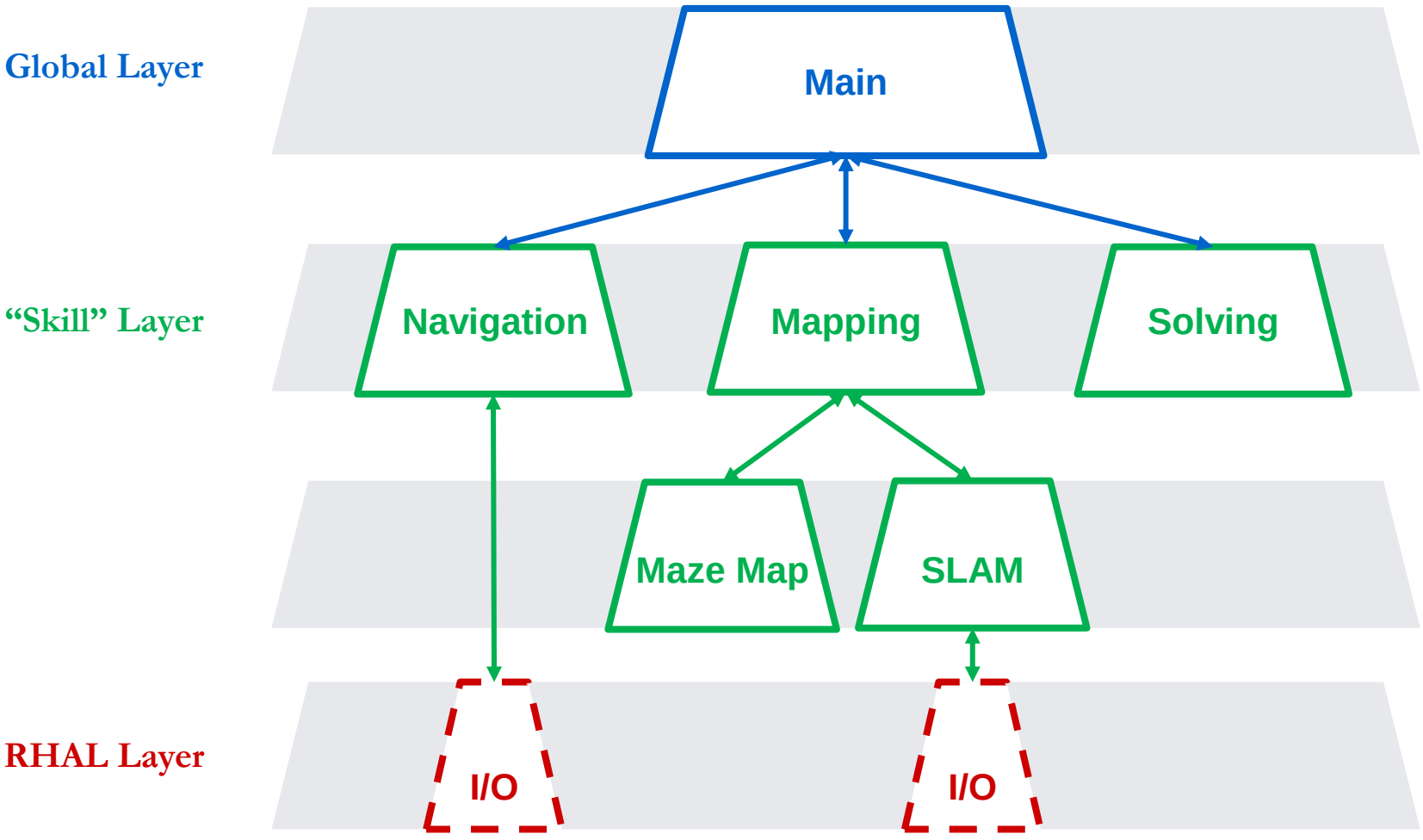
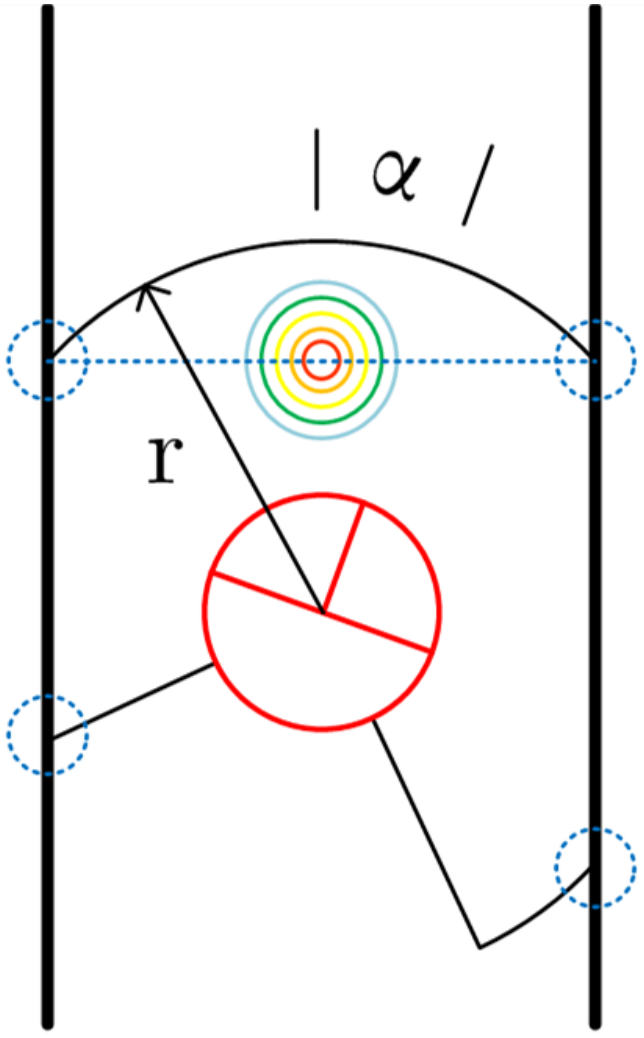
Where innovation starts

Composition Hierarchy

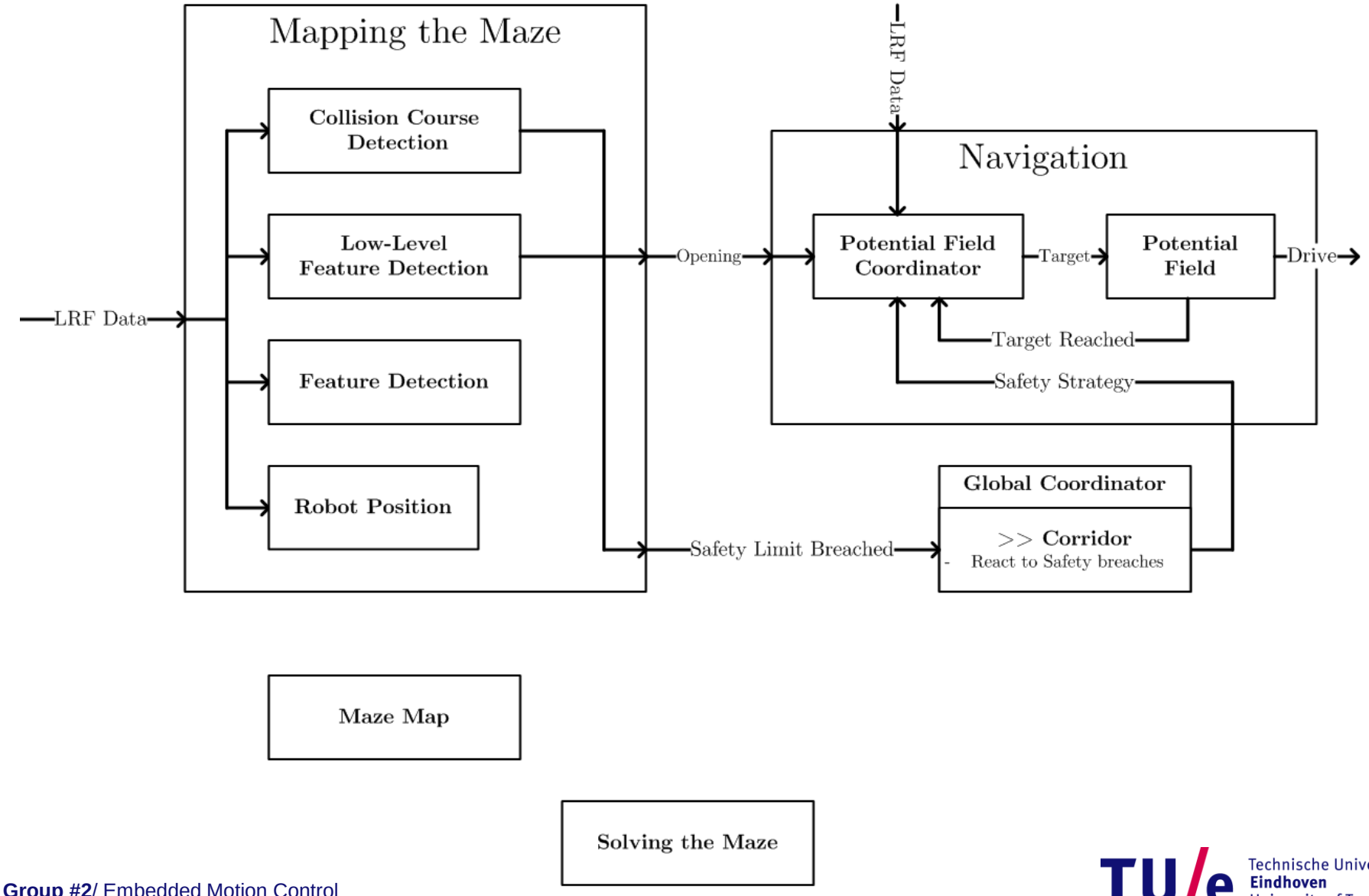


Method: Navigation

- Limit view distance to r
- Find intersections with walls: 
- Calculate middle and use as target: 
- Use target for **Potential Field**
- Angle α is regulated to zero



Schematic: Navigation



Method: Special Situation

- Limit view distance to s
- Find intersections with walls: 
- Calculate middle and use as target: 
- Solving algorithm chooses direction

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[F,R,L,B]
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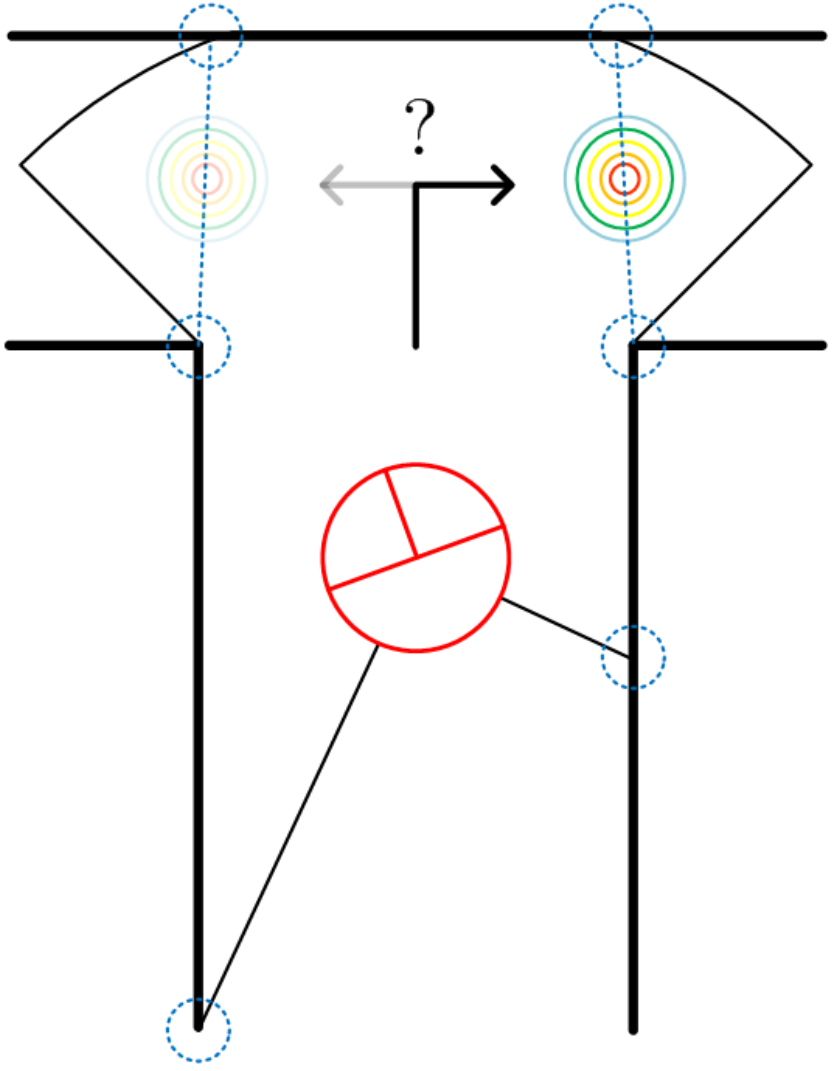
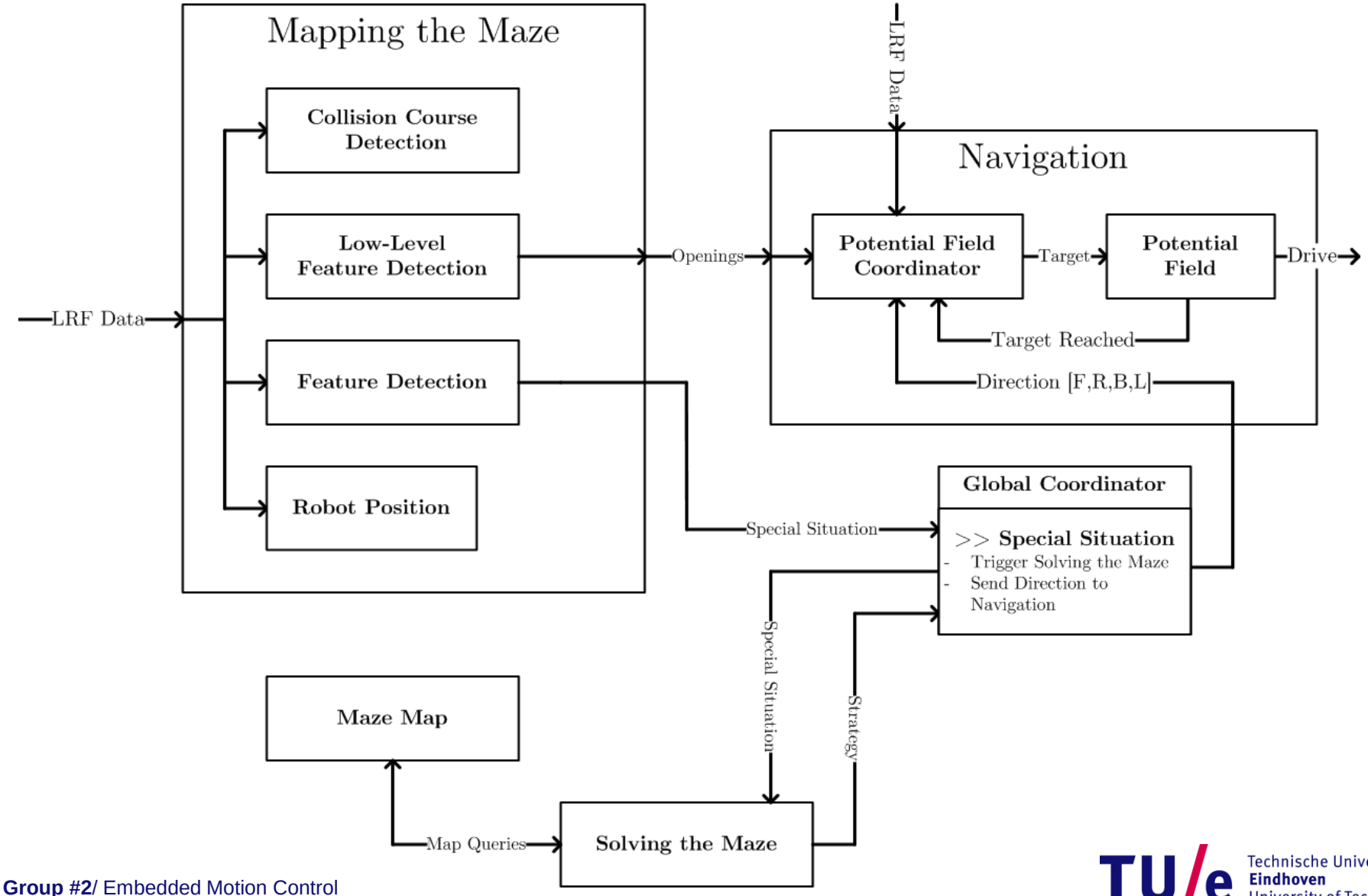
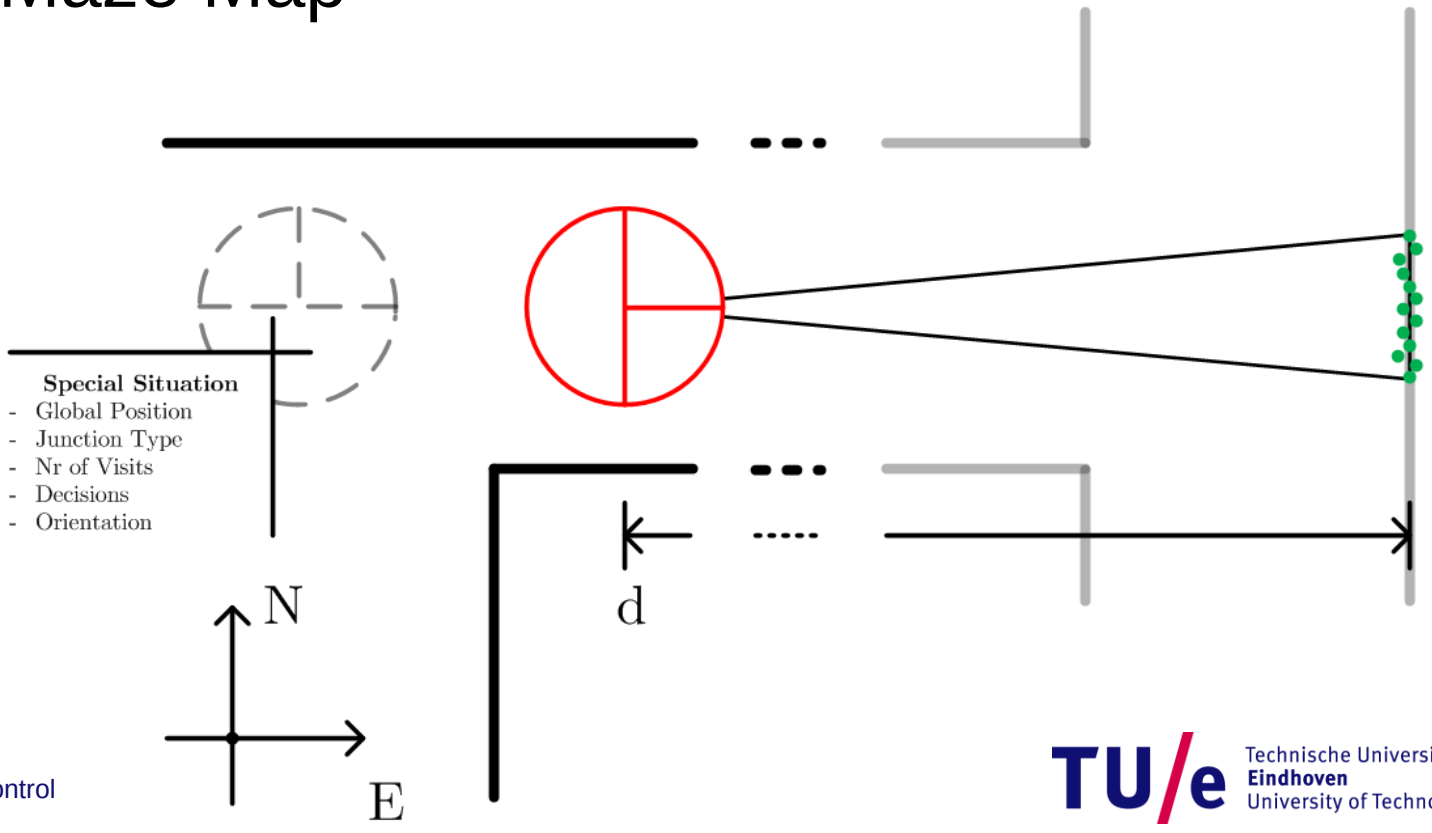


Schematic: Special Situation



Method: Mapping the Maze

- After Special Situation
- Determine distance d
- Update Maze Map



Things We've Learned

- How to work with 7 on one software-project
  - Requires decoupling! (5C's)
  - Structured approach to programming
  - Different Nationalities
  - Different Backgrounds
- Mapping robot functionality to software
  - Task-Skill-Motion → Composition Pattern
- Planning the use of resources (e.g. test time)
- C++ programming, working with Repository (GIT) and working with Ubuntu

Questions/Discussion

Thank you for your attention!

- Questions?
- Remarks?
- Discussions?

Group #2: