**ARCHITECTURAL VIEWPOINT**

**USER VIEWPOINT REQUIREMENTS**

USR1-M: Thymio A and B must be able to move forward;

USR2-M: Thymio A must be able to do an overtake;

USR3-M: Thymio A must be able to turn around;

USR4-M: Thymio A and B must be able to indentify the end of the road;

USR5-M: Thymios must be able to avoid collision with each other;

USR6-M: Thymios must be able to identify the other Thymio on the way;

USR7-M: Thymios must be able to follow the road;

USR8-M: Thymio A must be able to go faster than B;

USR9-M: At SoS start Thymios must be in the initial configuration;

**SYSTEM REQ**

**Environment Requirements**

SYS1-R: The Thymio should operate on a space of 1m x 3m;

SYS2-M: The surface must be flat and smooth;

SYS3-R: The Thymio should not operate in a too bright area;

SYS4-M: There must not be obstacles in the entire area;

SYS5-M: The area must contain a single road;

SYS6-R: The end of the road should be delimited;

**SoS structure and rules Requirements**

SYS7-M: The SoS must be composed of 2 Thymios;

SYS8-M: The SoS target must be that each Thymio reaches its final destination without crashing;

SYS9-M: At Sos starts, the Thymios must be positioned on the road facing the same direction;

SYS10-M: At Sos starts, the Thymio B must be in front of A;

SYS11-M: The execution must complete when Thymio A reaches the start of the road and B reaches the end of the road;

SYS12-M: The Thymios must know that the only other entity is the other Thymio;

SYS13-M: Thymio A must perform an overtake when it reaches the Thymio B;

SYS14-M: Thymio A after completing the overtake must turn around after 10 seconds;

SYS15-M: Thymio A must stop when it reaches the start of the road;

SYS16-M: Thymio B must stop when it reaches the end of the road;

SYS17-M: Thymios must follow the road;

**IMPLEMENTATION REQUIREMENTS**

IMP1-R: At the start the Thymio B should be positioned 0.5 m in front of Thymio A;

IMP2-R: The Thymio B should stop for 5 seconds when encounters the Thymio A, either from the front or the back;

IMP3-M: The Thymio A must overtake from the right the Thymio B.

**VIEWPOINT COMMUNICATION/RUI**

SYS18-M: The Thymios follow the road using the bottom infrared sensor;

SYS19-M: The Thymios identify each other using the front infrared sensors;

IMP3-M: The Thymios identify the street when the bottom infrared sensors reads a value x <= 400;

IMP4-M: The Thymios identify the other Thymios when the front sensors when the front sensor reads a value y >= 300;