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Robocup Asia Pacific

Bit Fusion

# 1 | Research

## Problem statement

The floor may be either smooth or textured (like linoleum or carpet)

The following suggests that we must be versatile in our movement method, we cannot use a method that generates too much friction, nor do we want to remove all of it. Perhaps the use of an interchangeable system between normal tires and omniwheels?

The black line, 1-2 cm wide, …

Previously, our IR sensor modules had all been designed to fit the larger end of this spectrum. We need to have a modular system, that can adapt during a tournament.

The line will be 10 cm away from any edge of the field, walls, pillars to support ramps, seesaws, and obstacles that do not lie ahead of the robot’s path.

This specifies that we should aim to have the robot’s width constrained to 100 or smaller.

The line will end with a goal tile with a 25mm x 300mm strip of red tape …

Our line follower module must be able to distinctly distinguish between the colors red and green. Their wavelengths are 700 nm and 530 nm respectively.

Speed bumps will have a height of 1 cm …

There must be at least a 10 gap between the bottom of our robot to the line following module

Obstacles may include bricks, blocks, weights, and other large, heavy items.

There are no predetermined dimensions of the obstacle, only the height is determined to being at least 15cm, we must include sensors to adapt to any shape.

Ramps will not exceed an incline of 25 degrees from the horizontal.