DriveController functionality

General intro

- Desired location
- Current location
- Close proximity region
- Block mode

DriveController
Drive to Position

- Block status

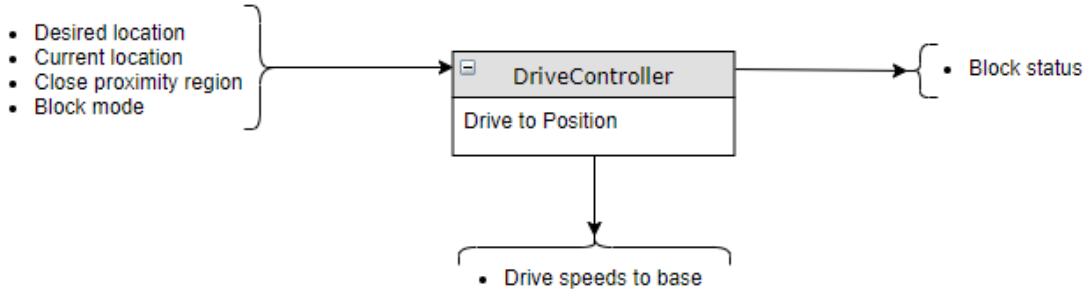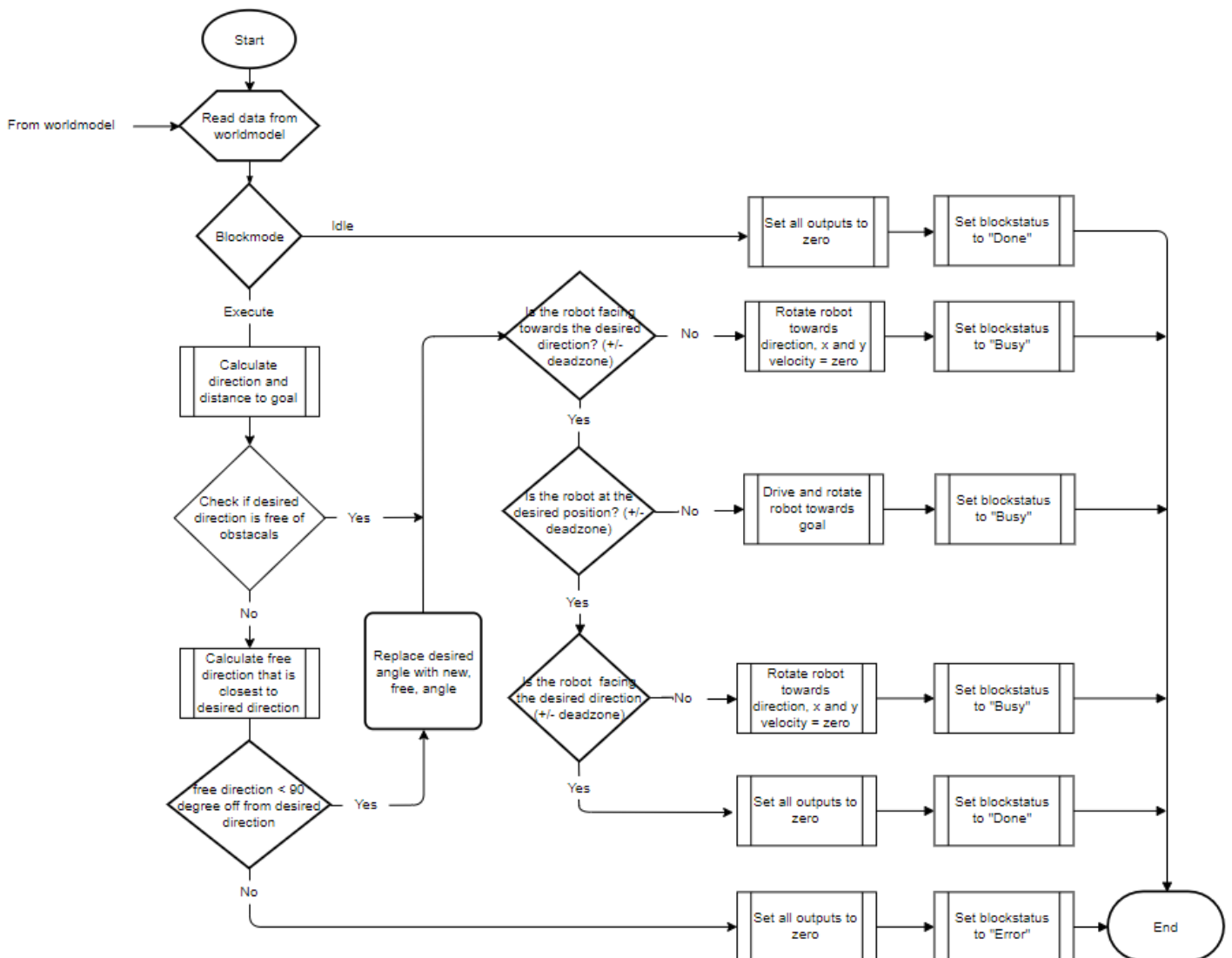- Drive speeds to base

Flowchart
The DriveController follows each loop the same flowchart to decide what action needs to be taken. The used flowchart in shown in the figure below.

Block functions

Calculate direction and distance to goal

The current and desired location are received as Vector2 structures. The build in function "angle" and "distance" in this structure allows those calculations.

Calculate free direction that is closest to desired direction

The "close proximity region" struct received from the world model contains information about which directions around the robot are free of obstacles. From this information all the direction that are free of obstacles are calculated and the direction that is the closest to the original desired direction is chosen.

Set outputs

At this point the direction and distance to the desired position are known. The directions and rotation is fed into three PI controller which output the desired speed. This speed is send to the drive base of the pico-robot using the building function of the pico platform.

Set blockstatus

At the end of the flowchart the status of the DriveController is send to the world model. The possible statuses are "busy", "Done" and "Error".