Objective

See Team strategy

How do we complete this

The robot needs to have some understanding on its location vs the location of the acorns and the field.

There are a number of ways to complete this;

- Use an outside sensor that tracks the position of the objects on the field.
- Triangulation, where the robots knows there position by comparing their selves to some known datum's.
- Dead reckoning, where the robot know where it is by knowing where it started and where its been.
- Or, have the robot not move and reach to know locations.
- Just head towards any green object...

List of sensors

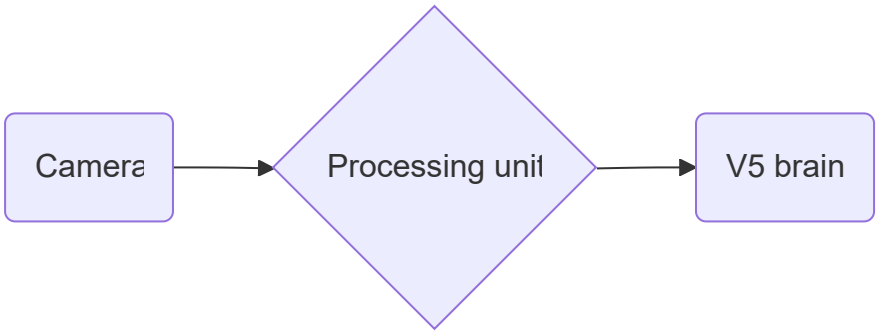
- Ultrasonic
- Lidar
- Time of flight
- colour sensor
- Optical flow
- magnetometer
- mouse ball type sensor, maybe leading into rotatary encoders

View from afar

for example; set up a camera that can see the robots from afar and see their location in relation to the frame of the picture, and

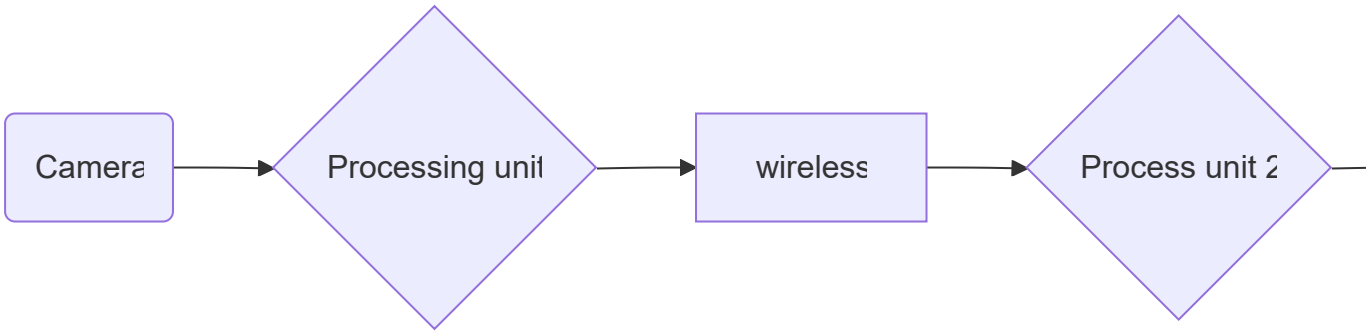
This is a grey area as per <VUR12> "A sensor may be connected to a processing unit which then connects to the V5 Robot Brain."

therefore this is ok:



this is not ok because:

<VUR12> "Sensors and Additional Electronics MUST be connected to the V5 Robot Brain via any of the externally accessible ports" the first processing unit is not connected to the robot brain.



Triangulation

The robot know its position based on its position in relation to some reference points at know locations.

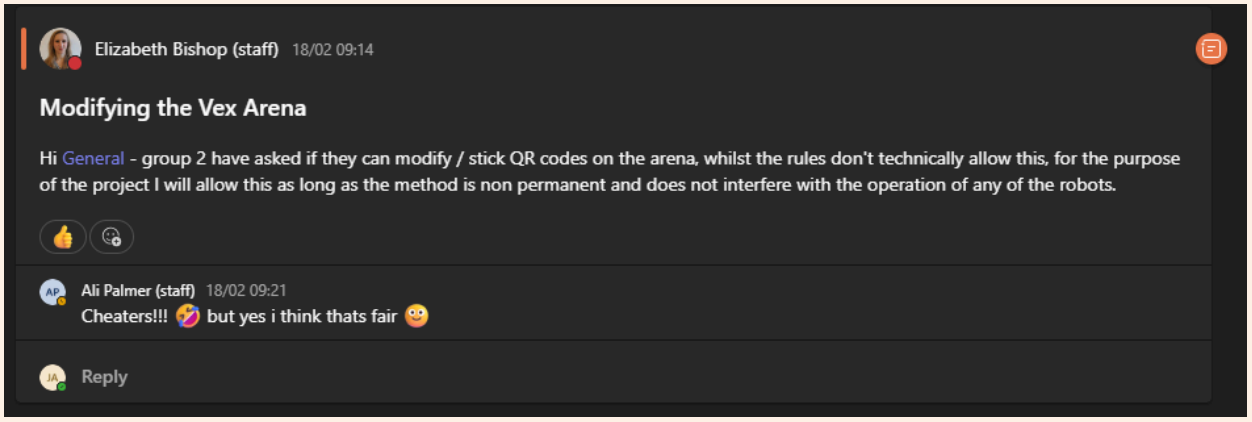
Question

Is it in the rules to apply markers to the field so that robot can triangulated its position against?
Answer:

The VEX kit sells markers that can be applied to the outside of the

https://www.vexrobotics.com/276-7823.html

Yes it is OK to apply markers the the VEX Arena



https://kb.vex.com/hc/en-us/articles/360061932711-Using-the-V5-GPS-Sensor

Dead reckoning

The robot know where it is based on where it has been. This has bee trialled, this is not good enough for combined movements however single movements seam to be OK.

Open loop

1. Dead reckoning

Keep track of the position of the robot by where it has been.

Closed loop

1. Use a top down camera

Use a top down camera that can see the whole field and identify the acorns, cars and areas of interest. compute where to move the car to and send this info to the car.

3. Apply reference points to the field

for example; ir leds at location so that the car knows its location based on the angle of the ir leds.