Ian Johnston – s1018358 – milestone 3

Right after the last milestone we choose the wheel base for the final robot. I presented the team with 3 different concepts (1 - a standard 2 big wheels with ball bearing, 2 - a standard holomonic with 4 the NXT servo motors to give superior control, using either an NXT motor multiplexer or the arduino to control all 4 motors at high precision, 3 – a holomonic robot that had opposite wheels connected together using a compass to find the orientation and a turntable on the top to allow it to rotate). The team choose concept 2. I then built the wheel base with this design, I am very pleased with it as it is strong, well supported and even has space in the middle for a battery pack, only problem with it is that the gears occasionally pop out, adding blue tack on the axis seem to reduced this occurrence a lot.

While preparing the 3 different concepts I managed to write a problem that allows the lego brick to communicate with a vector 2X compass. While we currently aren't using it, it does mean we have the option to add it at a future point if we decide we want to. (Note: It should be really easy to update the code to be used with the arduino)

I took the nav code and rewrote how it worked out the direction of movement, rotate speed, and rotate direction so it chooses appropriate motor speeds to move towards the target while rotating to face it. I then put some code together so our robot could compete in the 1st friendly. This included a bit of code that made the target the ball, made it kick when close to the ball and a hard coded penalty routine onto the brick (making it randomly decide which side of the goal to shoot then rotate and shoot that way). We then went on to win the friendly using that code!

Finally I added some simple spinners the the kicker to help the robot keep the ball this helped with the milestone as it meant the robot could rotate while keeping the ball. I also helped getting the "move to ball, dribble ball and shoot" code working fairly reliably (sometimes the robot would think it doesn't have the ball while it actually does, meaning the robot reacts wrongly).

I feel I deserve a 5 for my efforts for this milestone.

I also feel that GK should get a 5 for his outstanding work with the arduino which currently looks very promising. And also feel RW should get a 4 for this work with AI.