# Summary of project:

I will be making two robots walk towards each other. The robots will both be the same type of robot (maybe I will see if I can make them different colors for fun and differentiation) and will be placed randomly in a reasonable sector of the landscape as to not evolve each robot to just walk to that area. So I believe the fitness function would be to minimize the distance between the two robots.

### Email hint from Josh:

Hint: You’ll have to enable the robots to sense each other. To do this, you’ll have to get the position of the current robot, the position of the other robot. If you take the difference between these two positions, you’ll get a vector that points in 3D space. If you convert this to polar coordinates, you’ll r — how far away the other robot is — and theta — what angle the other robot is from the current robot. You could take both values and overwrite the values of two of the touch sensor neurons.

This last step would mean that the robots would lose touch information from two points on their bodies, but it has the benefit of not requiring you to code up an entirely new sensor.

## Milestone 1:

#### Goal:

Duplicate the robot we have from quadruped and get both robots to randomly be put somewhere in the landscape. I will make sure that everything works fine and both robots are able to evolve walking.

#### Proof:

Video of both robots appearing in the landscape and walking. Run it a couple of times to show that the placement of the two robots is mostly random every time.

## Milestone 2:

Get the position of both robots and take the difference of the two, this will give a vector that points in 3D space. Then convert this to polar coordinates. Print this out.

#### Proof:

Video that robots move as they should normally from Milestone 1, and then also a screenshot or included in the video of the console printing out the polar coordinates every time.

## Milestone 3:

Take the information from Milestone 2 and overwrite the values of the two touch sensor neurons. This will work towards getting the robots to walk towards each other.

#### Proof:

Video of the evolved robots hopefully walking towards each other after being evolved using the PHC method!