**Worksheet 3: Obstacle Avoidance Challenge**

Now it is time to put everything you’ve learnt today into practice! The challenge is to make your tortoise explore the arena while avoiding the obstacles as much as possible. Each group’s tortoises will be tested later and the tortoise that has the least collisions wins.

You have to choose where to put your sensors and any LEDs and then write the code that will control your tortoise. Here are some things to think about:

* Where should the sensors go to get maximum coverage in checking for obstacles?
* How can you use LEDs for feedback while testing in the arena (i.e. without your monitor plugged in) so you know that your code is working?
* How do you want the robot to move when there are no obstacles around? Check the different movement and turning functions on the function reference sheet. **Hint:** one way of making robots explore that is used a lot in robotics (including in Grey Walter’s tortoises) is to use **random movement**
* How do you want the robot to move when it does see an obstacle? Back straight away or turn first?
* You can always try out different combinations in the arena to test out what works best – but beware that demonstrations will begin at 13:35pm!