Intelligent Robotics – Coursework 2

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# Arena

There are various models of the Elevated Plus-Maze (EPM), some of them have only small differences (e.g. less than 5cm difference in length of the arms), others have more notable differences (e.g. having small walls around the “open” arms). Most encountered differences between EPM specifications are in the length of the arms, height of the walls surrounding the arms and the materials used for creating the maze. All of these variations can influence test results and should be taken into consideration (Sandy, 1996).

For our setup, we do not take into consideration the material used for creating the EPM since it is a virtual simulation. The notable dimensions we studied for our EPM were the length of the arms and the walls surrounding them. These are as shown in Table 1 and are based on the dimensions described by File and Pellow.

The only alteration made was making the height of the closed arm walls lower by 10cm. This was done to ease the visualisation of our robot in the maze since we found that 40cm walls would reduce the view angle we could use and still have the robot in view. One aspect of note is that the elevation does not influence our simulation, but our aim was to create an arena that would be as close to the actual specifications used in real tests.

Table 1 Elevated Plus-Maze Dimensions

|  |  |
| --- | --- |
| Closed Arms | 50 x 10 x 30 cm |
| Open Arms | 50 x 10 x 0 cm |
| Central Area | 10 x 10 cm |
| Elevation | 50 cm |

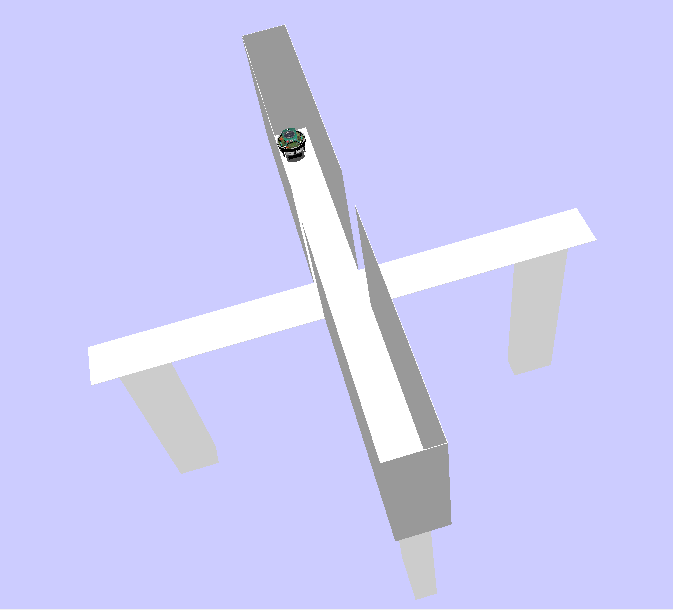
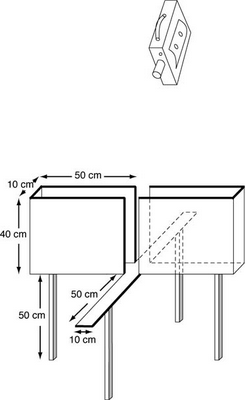
 

Figure 1 Left - The EPM we designed inside the Webots software Right – EPM figure used as reference (File, et al., 2004)

# References

File, S. E., Lippa, A., Beer, B. & Lippa, M. T., 2004. Animal Tests of Anxiety. *Current protocols in neuroscience.*

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Sandy, H., 1996. A Review of the Validity and Variability of the Elevated Plus-Maze as an Animal Model of Anxiety. *Pharmacology Biochemistry and Behaviour,* Volume 54, pp. 21-30.