

Appendix B

Preparation of Weight Blocks

In the theme Hazardous Waste Disposal, the Bridge plays a very important role of connecting two Areas. Bridge is the only way by which the robot can travel back and forth between the two areas and complete the assigned operation. The working of Bridge is mainly dependent on the addition of weight blocks onto the container box attached to the diagonally opposite ends of the Bridge. Each of these weight blocks should weigh 100g respectively. A brief tutorial about preparing the weight blocks is presented below.

Note: This is a suggestion for making a Weight Block. You are free to create weight block with desired material but the volume and weight of the block should be fixed (Slight variation of 5 gram is allowed). In the finals of e-Yantra Robotics Competition weight blocks as shown in this manual will be provided.

The Tutorial is divided into three parts:

1. List of components required
2. List of tools required
3. Instructions to prepare a weight block

1. List of components required:

- Thermocol is of 4 cm thick, if a single sheet of required length is not available, then two or more smaller pieces can be joined to form a single wall of required size.
- A Metal ball which weighs 100g.

Note: Ball made up of any metal can be used but of course keeping in mind that it should weigh 100g.

2. List of tools required:

- Thermocol cutter.
- Soldering iron or hot element to make a hole in the thermocol block.
- Adhesive tape.

3. Instructions to prepare a weight block:

Step 1: Cut thermocol sheet and create 4cm x 4cm x 4cm cube:

- Mark the dimensions and cut out the cube of 4cm x 4cm x 4cm as shown in Figure 1.

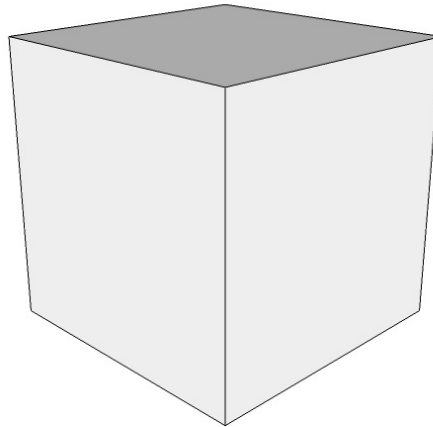


Figure 1: Thermocol block

Step 2: Measure the diameter of the Metal ball

- Based on the metal used the size of the Metal ball will vary. Using a measuring tape find the diameter of your Metal ball.

Step 3: Make a hole in the thermocol block equivalent to the diameter of metal ball:

- Consider one of the faces of the thermocol block and draw the diagonals of that face.
- Draw a circle of diameter equivalent to diameter of Metal ball with center as intersection of two diagonals of the square. Refer to Figure 2.

Note: A cube looks like a square when viewed from top (Top view), where all the marking is to be made.

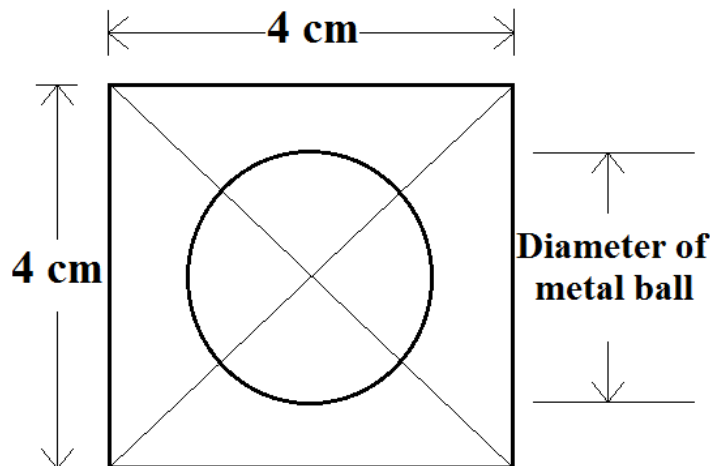


Figure 2: Thermocol block after marking

- Use heating element like soldering gun and scoop out the thermocol within the circle such that the depth of the hole = Radius of the Metal ball + 2 cm. Refer to Figure 3.

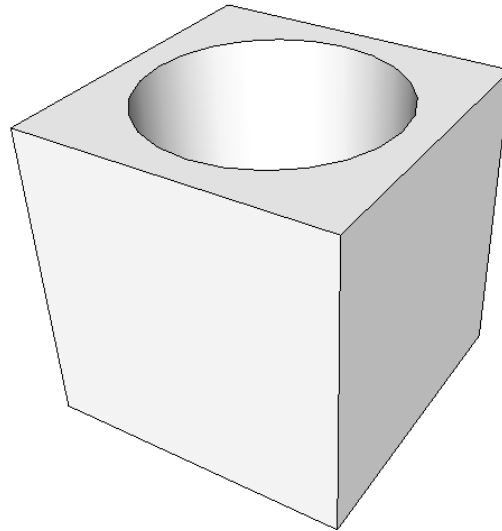


Figure 3: Thermocol block after making the hole

Step 4: Fix the metal ball inside the thermocol block:

- Insert the Metal ball in the hole such that the center of the Metal ball coincides with center of the block.
- Add scrap thermocol to fill the gap between the surface of the thermocol block and the Metal ball and cover the surface with adhesive tape.
- Now a weight block is ready.
- Make 10 more similar weight blocks [11 in total].