Task 3 - Biped Patrol (BP)

Read Me

Greetings from e-Yantra!
Welcome to Task 3 of theme Biped Patrol.

This task is divided into three parts:
◆ Task 3.1
◆ Task 3.2
◆ Task 3.3

● Task 3.1

You will find the following files in **Task 3.1** folder
1. Bridge Shapes.jpg
2. Bridge_Construction.mp4
3. Making Supply Items.pdf
4. Making The Bridge.pdf

In Task 2 you printed the Arena, but some of the structures are remaining to prepare the arena completely. These components are Racks, Beds, Medicine Boxes (MB), First Aid Kits (FAK), Chlorine Tablets (CT) & Bridge.

For construction of Racks & Beds for Medical Store & Medical Camp Rooms, you can use the material of your own choice as long as they make a sturdy structure.

● **Making the Bridge**

For making the Bridge we will use MDF board for construction. MDF stands for **Medium-Density Fibreboard**.

For detailed process open file named as **"Making the Bridge.pdf"** and follow the instructions.
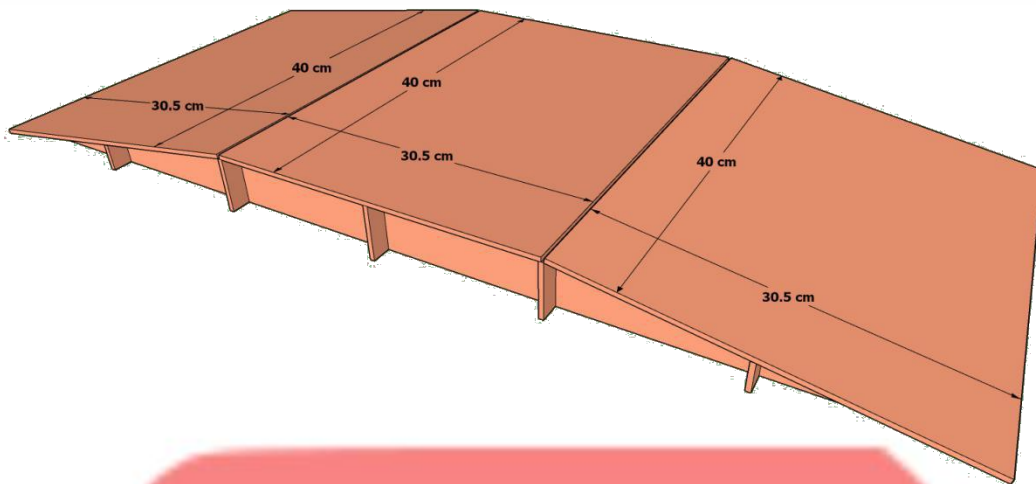
Figure 1: The Bridge

- **Making Supply Items**

The items which the Medbot will deliver to the Beds, Racks and Water Storage Tank area are MB, FAK & CT.

The dimensions of MB & FAK are **40mmX40mmX40mm.**
The dimensions of CT are **40mmX20mmX40mm.**

For detailed process open file named as **"Making Supply Items.pdf"** and follow the instructions.
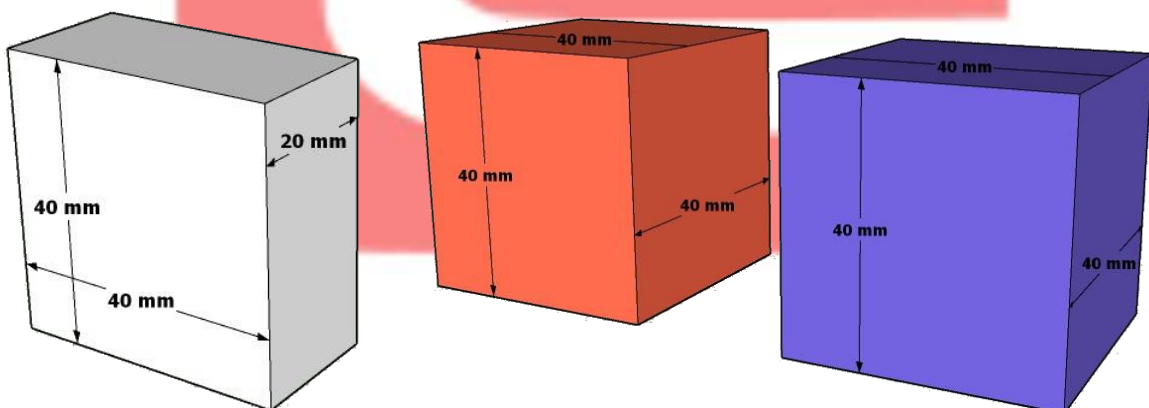

Figure 2: Chlorine Tablet **(CT),** Medicine Box **(MK) &** First Aid Kit **(FAK)**

● **Task 3.2**

You will find the following files in **Task 3.2** folder
1. Task 3.2 - Building the Remote.pdf
2. Tutorial - Configuring XBee in API Mode.pdf

In this task you will be designing/building you remote control for the robot based on the instructions provided in **"Task 3.2 - Building the Remote.pdf"** using the XBee, Joystics etc. which are provided in the robotic kit.

● **Task 3.3**

You will find **"Task3.3.zip"** file in **Task 3.3** folder.

Follow the step below for completing this task:

1. Go to https://www.overleaf.com/and login using your Google account. Click on **"New Project"** then click **"Upload Project"** and upload this **"Task3.3.zip"** file. Refer to image below:
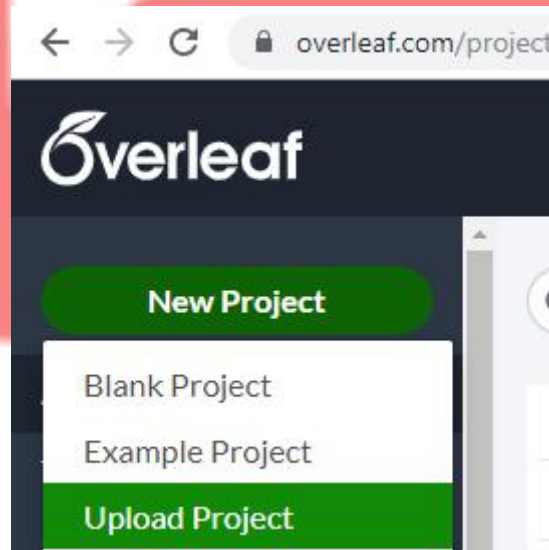

Figure 3

2. Once the project is loaded, enter your team details by editing the appropriate content between line 74 - 86 in the source code area as indicated below:
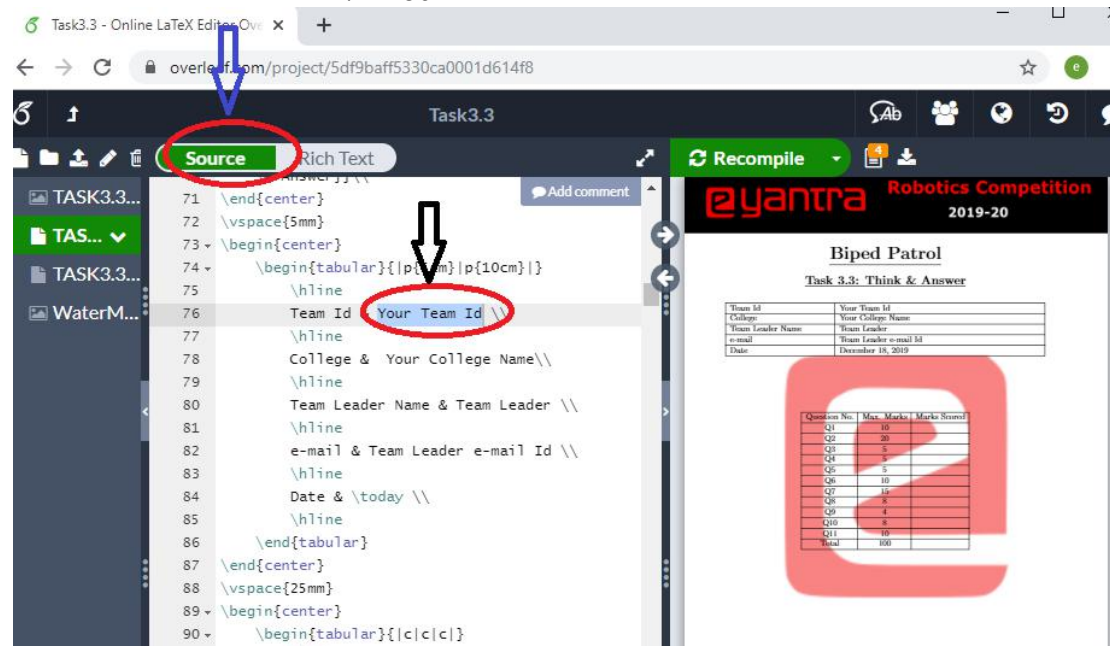

Figure 4

3. Click recompile, it will reflect the updated details on the pdf preview area on the right side of the window.

4. This task contains various questions related to your understanding of the underlying theory, rulebook and the hardware. In the source code area you can see the marked space for writing your answers for the given questions as indicated below:
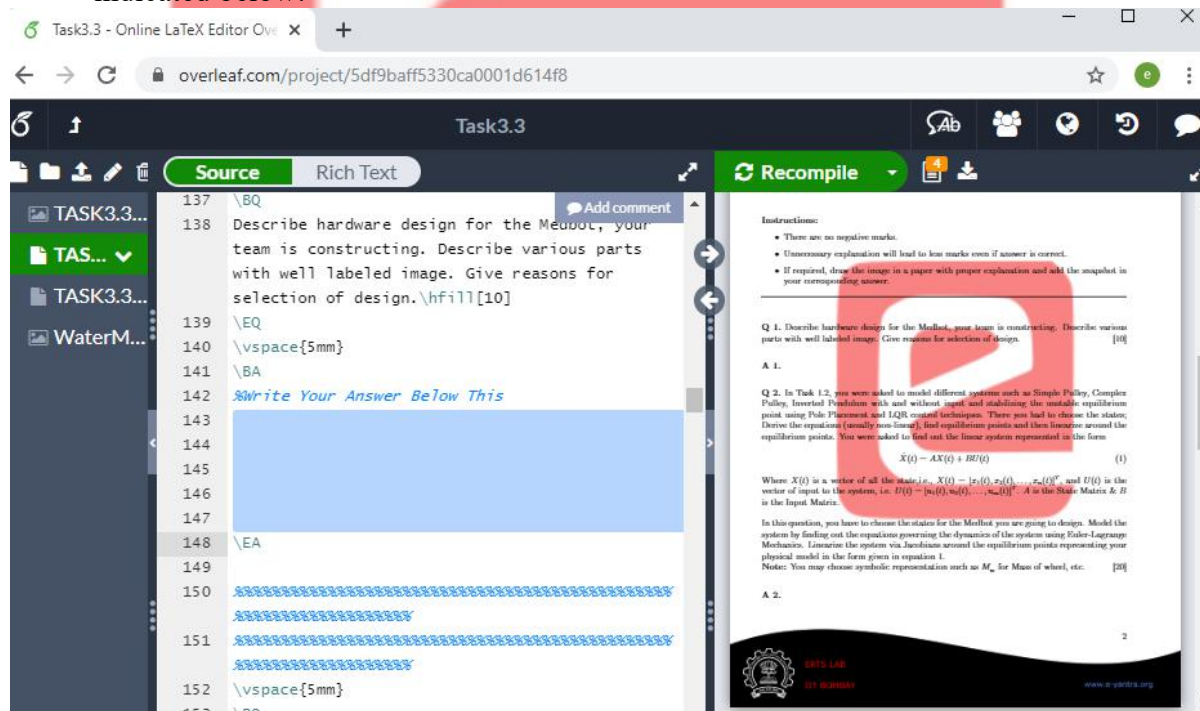

Figure 5

NOTE: Do not make changes in the source code beyond the indicated area for the answers.

NOTE: You can inclued the images of exlplaining the answeres as deemed suitable.

NOTE: You shall not upload text part of the answers as image. Only drawings and diagrams are allowed as image.

Submission Instructions

Task 3.1

1. Once all the 3-D structure of the arena is constructed, arrange them on the arena as shown below and click a picture of your Arena (with full view of the arena as shown in image below) using a camera. This picture must clearly depict all the elements of the arena.
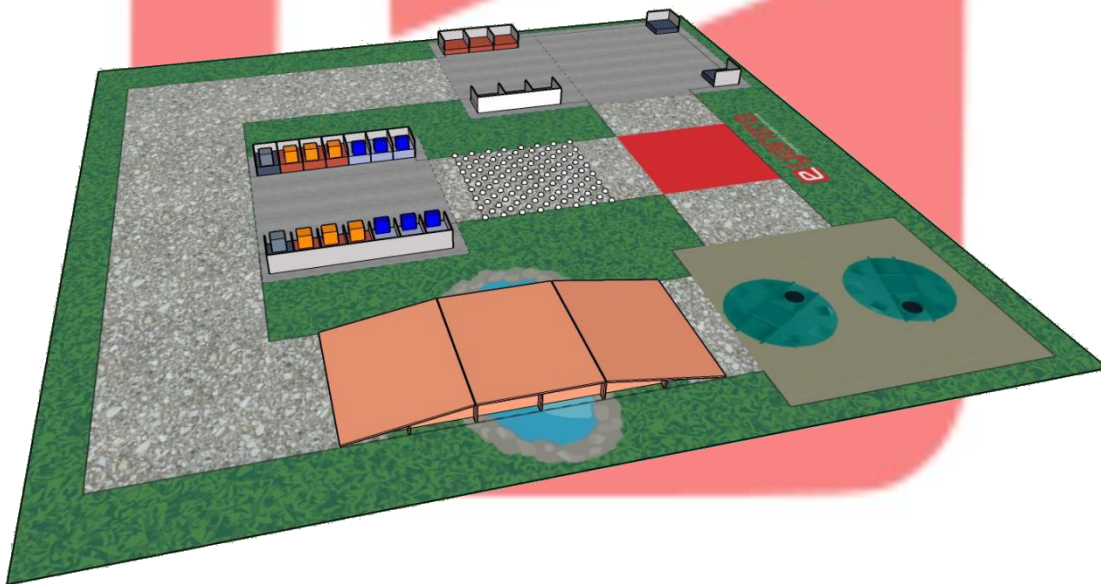

Figure 6

2. Rename the captured picture as **"BP_<Team_ID>_Arena.png"**. Upload this captured picture of the arena in **".png"** format as instructed on the portal.

3. Make sure that the **".png"** file is within the **5 Mega Bytes** size range.

Task 3.2

In Task 3.2 document i.e. **"Task 3.2 - Building the Remote.pdf"**, we have provided a video demonstrating what you have to implement in Task 3.2. You have to do the following:
1. Create a test setup and remote as instructed in Task 3.2
2. Shoot a similar video as the one provided by us using a good quality camera.
3. Upload the video on Youtube. The video should be named **"BP_<Team_ID>_Task 3.2"**. The video should be uploaded under **Unlisted Category**.
4. Upload the youtube link of the video uploaded on the eYRC Portal under the space provided on Task 3 page.

Task 3.3

1. Once you have answered all the questions upto your satisfaction click on **"Download PDF"** button beside the Recompile option as shown below:
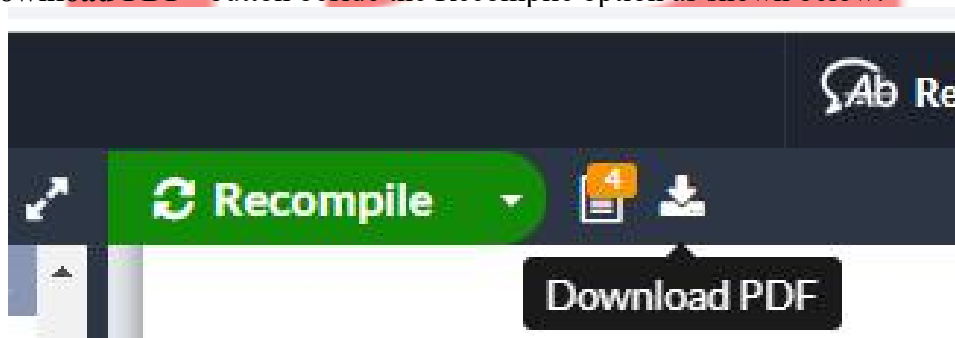

Figure 6

2. Rename this downloaded PDF file as **"BP_<Team_ID>_Task 3.2.PDF".** Now upload this **".PDF"** file on the portal as instructed.

3. Make sure that the **".PDF"** file is within the **5 Mega Bytes** size range.

Best of Luck!!