

CSCE 452 Project #2 TAMU – PaintBot

Project description: TAMU PaintBot is an RRR robot as illustrated in Figure 1 below. We follow the same configuration as that in Project 1.

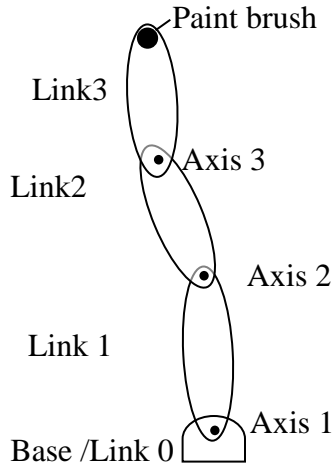


Figure 1: TAMU PaintBot

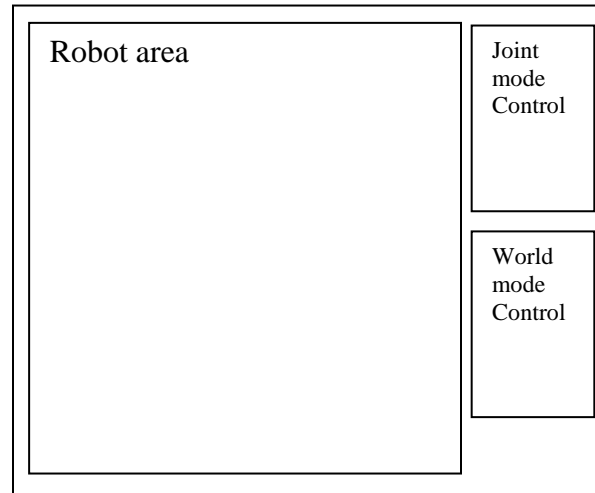


Figure 2: Interface

Figure 2 illustrates the interface layout. You can choose the language that you are comfortable. In Project 1, you have built buttons used to control joint rotations, which is referred as joint control mode in Figure 2. Project 2 will build on Project 1 by adding world control mode, which will be built on inverse kinematics (assuming the screen plan is X-Y plane):

Functionalities required in the control panel are,

1. X and Y buttons: each direction has two buttons (+X, -X, +Y, -Y). For example, if the +X button is clicked, the paint brush moves right by a certain number of pixels along positive X direction.
2. Paint brush control button. If the paint brush button is clicked, it paints a filled circular shape co-centered with the brush. The diameter of the circle may be 20 pixels or reconfigurable.

Each group needs to submit a project report before the due date. The simulated robot system will be demonstrated in class. There will be a paint-job competition in class to test your PaintBot. The winning team will get 5pts additional bonus point.

The requirements for the project are,

1. For project websites (20pts in total)
 - a) Create sub directories for project 2 on your project website.
 - b) Team member task allocation for current project. (5pts)
 - c) Team meeting log for current project. (5pts)
 - d) Source code for current project and instructions for compiling. (5pts)
 - e) Screenshot (jpeg or png format) of the software interface of current project. (5pts)

2. Peer Review (40 pts): You will be able to find a peer review form URL in our course website. **Note that each student needs to submit his/her own form. Grading will be based on overall score that your teammates evaluate you. The deadline for turn in your peer review form is the same as the project deadline. Those who fail to submit peer review form before the deadline will receive 5 pts deduction for each day as a penalty for the individual.** In the peer review form, there are two main parts: personal evaluation (20 pts) and technical evaluation (20 pts).
3. In-class demo (40pts): each team demonstrates the functionality of the system. No formal presentation is required. Project report in either pdf format or Google Docs with inverse kinematics model of the robot. When you present your inverse kinematics model, you also need to present the corresponding frame attachment and angle/offset of each joint in figures.