PROJECT SHEET

Robot arm

ABSTRACT

This task aims to develop a project sheet with project plan, tasks distribution, timeline, production line.

Rose Alaslani

Contents

1. The Purpose of The Project

This project aims to build a robot arm in order to participate in balloons pop competition. The key idea is that the teams have to pop the other teams' balloons before their own balloon get popped.

2. Project plan

1. Determining the team members and gathering them to agree on the project steps, the important tools, and the implementation period.
2. Determining the needed number of degrees of freedom in the project.
3. Determining the most suitable 3D software to design the arm and assembling it.
4. Printing the arms parts.
5. Determining the most suitable motor to move the arms and build the circuit.
6. Building the user interface control panel.
7. Installing and operating the arm using (ROS) and writing the code.
8. Test the final design.

3. Tasks distribution.

1. Mechanical engineering.

- Defending the dimension of the arms parts
- Building it with cinema4D software.
- Choosing a sharp end effector to pop the balloon.
- Assembling the complete part to test it before the printing.

2. Electronics and Electrical Power

- Building an electric circuit with 5 servo motor and Potentiometer.
- Programming the Arduino to make move the motors with 90^{o} for each.
- Programming the Arduino to control the motors movement with a Potentiometer.

3. Software and the Internet of Things

- designing the user interface for arm control
- Creating a database for the arm which will be linked with designed user interface control panel.
- Creating PHP pages to link between the database and the hardware parts.

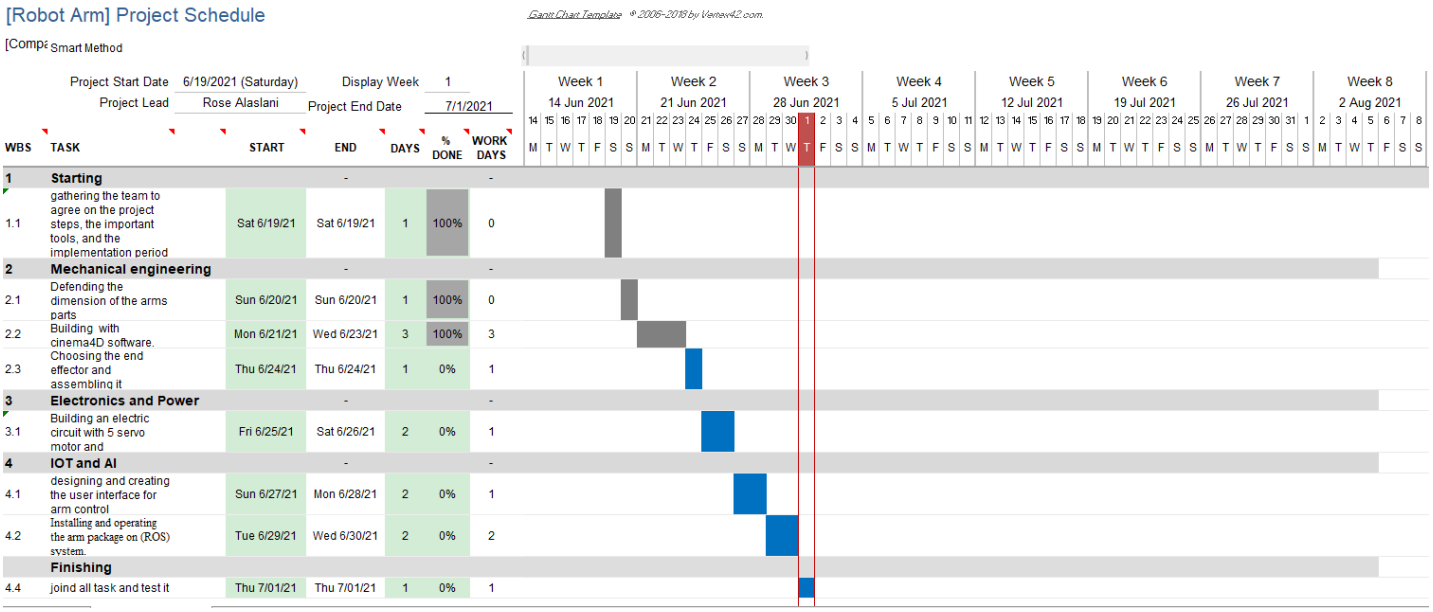
4. Artificial Intelligence

- Installing and operating the arm package on (ROS) system.
- Linking the ROS with the designed user interface control panel.
- Writing the code using python.

5. Industrial Engineering

- Leading and guiding the development and allocation of resources to attain project aims.

4. Project Timeline



[Robot Arm] Project Schedule

[Compa Smart Method

Gantt Chart Template © 2006-2019 by Vertex42.com.

Project Start Date 6/19/2021 (Saturday) Display Week 1

Project Lead Rose Alaslani Project End Date 7/1/2021

WBS	TASK	START	END	DAYS	% DONE	WORK DAYS
1	**Starting**		-			-
1.1	gathering the team to agree on the project steps, the important tools, and the implementation period	Sat 6/19/21	Sat 6/19/21	1	100%	0
2	**Mechanical engineering**		-			-
2.1	Defending the dimension of the arms parts	Sun 6/20/21	Sun 6/20/21	1	100%	0
2.2	Building with cinema4D software.	Mon 6/21/21	Wed 6/23/21	3	100%	3
2.3	Choosing the end effector and assembling it	Thu 6/24/21	Thu 6/24/21	1	0%	1
3	**Electronics and Power**		-			-
3.1	Building an electric circuit with 5 servo motor and	Fri 6/25/21	Sat 6/26/21	2	0%	1
4	**IOT and AI**		-			-
4.1	designing and creating the user interface for arm control	Sun 6/27/21	Mon 6/28/21	2	0%	1
4.2	Installing and operating the arm package on (ROS) system.	Tue 6/29/21	Wed 6/30/21	2	0%	2
	Finishing					
4.4	joind all task and test it	Thu 7/01/21	Thu 7/01/21	1	0%	1

Week 1 14 Jun 2021 · Week 2 21 Jun 2021 · Week 3 28 Jun 2021 · Week 4 5 Jul 2021 · Week 5 12 Jul 2021 · Week 6 19 Jul 2021 · Week 7 26 Jul 2021 · Week 8 2 Aug 2021

6. Production Line