PROJECT THREE: MILESTONE 1 – COVER PAGE

Team Number: Mon-58

Please list full names and MacID's of all *present* Team Members

Full Name:	MacID:
Aya Selman	Selmaa1
Mila Ilijevska	ilijevm
Mohammad Muntazar Bhurwani	bhurwanm
Muhammad Saad Siddiqui	Siddim68

MILESTONE 1 (STAGE 1) – WHY/HOW LADDERING

Team Number: Mon-58

1. Document both your conversation and a refined visual on a separate sheet of paper
2. Take a photo of both your rough work and refined visual
3. Insert each photo as a Picture (Insert > Picture > This Device)
4. **Do not include more than one Picture per page**

NEEDS HIERARCHY

Q. How do you design a system to sort and recycle containers?

- Identify objects using sensors, use multiple sensors for different criteria

① Why

- Ensure materials are not sent to the wrong bin
- Landfills get congested with incorrect materials, environmental issue

② Why should device be eco-friendly

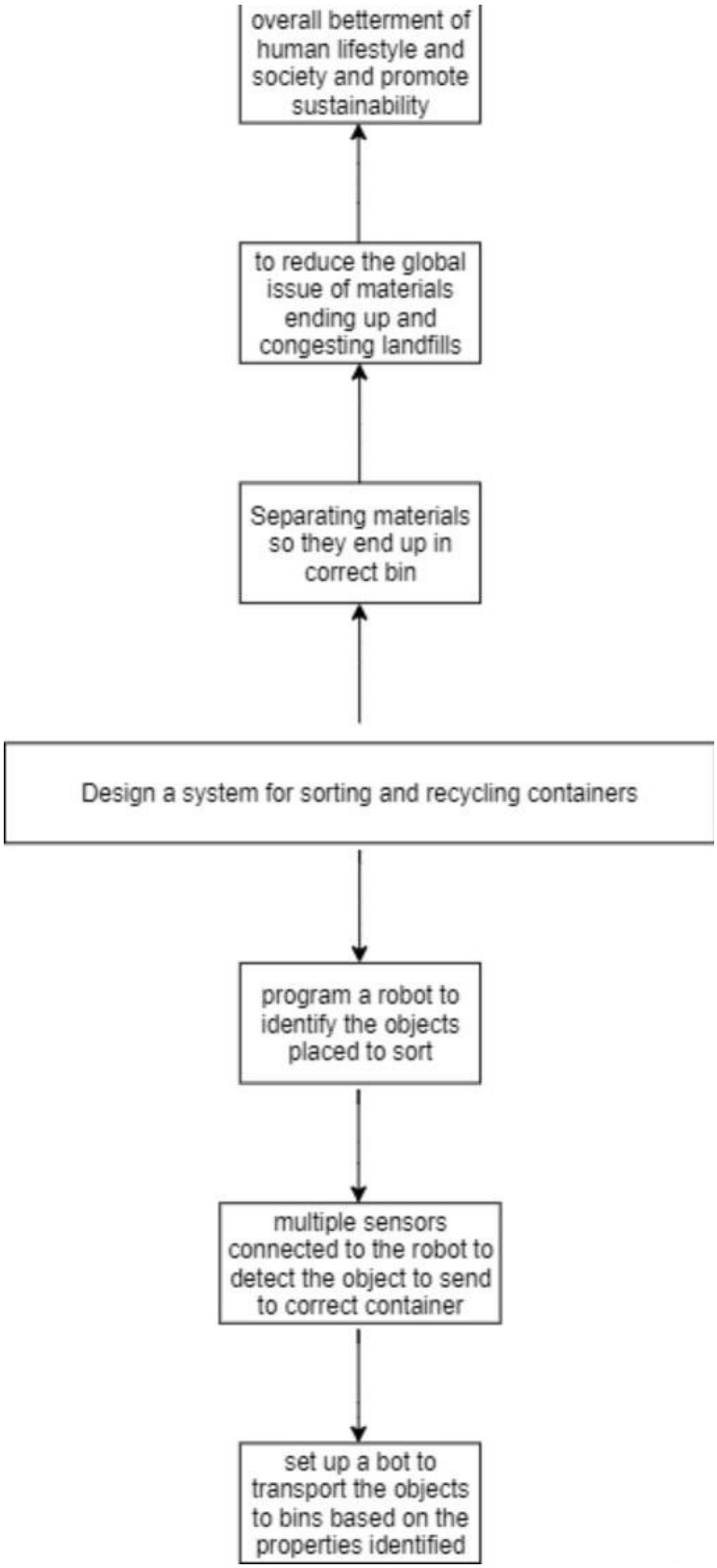
- Promote sustainability, better human lifestyle
- Pollution free, to battle enviroment issue

③ Why design a system

- Efficient, accurate, reliable

① How

- Program a robot, pick up object after sensors identify
- Set up bot to transport containers to right bins
- Identify using different sensors, based on phy/chem properties X (too solution oriented)


overall betterment of human lifestyle and society and promote sustainability
to reduce the global issue of materials ending up and congesting landfills
Separating materials so they end up in correct bin
Design a system for sorting and recycling containers
program a robot to identify the objects placed to sort
multiple sensors connected to the robot to detect the object to send to correct container
set up a bot to transport the objects to bins based on the properties identified

MILESTONE 1 (STAGE 2) – LIST OF OBJECTIVES AND CONSTRAINTS

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As a team, create a list of objectives and constraints in the table below. The exact number you should have depends on what information you have gathered from the Project Pack as well your previously completed needs hierarchy.

Objectives	1. Should accurately identify and classify the materials placed before the system 2. Should analyze container for contamination 3. Should verify if the container is recyclable or non-recyclable 4. Should transport and deposit the objects into their respective bins 5. Designed device should be able to deposit container into recycle bin
Constraints	• The total mass of the new container positioned in the Sorting Station as well as all the containers on the Q-bot must exceeds 90-grams. • There must be fewer than 3 containers already on the Q-bot when the Q-arm goes to pick up and load a container. • For a new container to be picked up, the new container must be transferred to the same bin as the containers already on the Q-bot. • The total mass of all containers on the Q-bot must be less than 90-grams, for a new container to be picked up. • Designed system must be environment friendly to promote sustainability. • The baseplate mounted to the Q-bot must connect to the device at 2 locations

MILESTONE 1 (STAGE 3) – REFINED PROBLEM STATEMENT

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Initial Problem Statement

6. Write the initial problem statement in the space below. This will have been defined in a previous lecture, prior to your scheduled Design Studio.

Design a system for sorting and recycling containers.

Refined Problem Statement

7. Write the refined problem statement below. Kindly refer to the Refined Problem Statement rubric provided on Avenue (see P3 Rubrics). This will guide your group in creating a valid statement.

Design a system that identifies and sorts materials, while also being able to transport and deposit them into their respective bins. The container must be analyzed for contamination and verified if it is recyclable, to avoid incorrect waste being deposited. This allows for the recycling system to be sped up and its accuracy greatly improved using autonomation.