

## Project Initialization and Planning Phase

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|---------------|--|
| Date          | 1 December 2024                            |
| Team ID       | 739846                                     |
| Project Name  | Garbage Classification Using Deep Learning |
| Maximum Marks | 3 Marks                                    |

### Define Problem Statements (Customer Problem Statement Template):

With the increase in the number of industries in the urban area, the disposal of solid waste is really becoming a big problem, and solid waste includes paper, wood, plastic, metal, glass, etc. The common way of managing waste is burning waste and this method can cause air pollution and some hazardous materials from the waste spread into the air which can cause cancer. Hence it is necessary to recycle the waste to protect the environment and human beings' health, and we need to separate the waste into different components which can be recycled using different ways. The present way of separating waste/garbage is the hand-picking method, whereby someone is employed to separate out the different objects/materials. The person who separates waste is prone to diseases due to the harmful substances in the garbage. This problem can be overcome by automating the garbage classification process.

| Problem Statement (PS) | I am (Customer)                           | I'm trying to  | But  | Because  | Which makes me feel  |
|------------------------|---|--|--|--|--|
| PS-1                   | A municipal waste management officer.     | Efficiently classify large volumes of garbage into recyclable, non-recyclable, and hazardous categories. | The manual sorting process is slow and error-prone.                                  | It relies heavily on human labor and lacks technological support.          | Frustrated due to inefficiency and concerned about increased costs and environmental harm. |
| PS-2                   | A homeowner practicing waste segregation. | Correctly identify and dispose of recyclable and non-recyclable garbage.                                 | I often find it difficult to determine the correct category for certain waste items. | The guidelines are unclear, and there's no accessible tool for assistance. | Confused and guilty for potentially harming the environment.                               |