

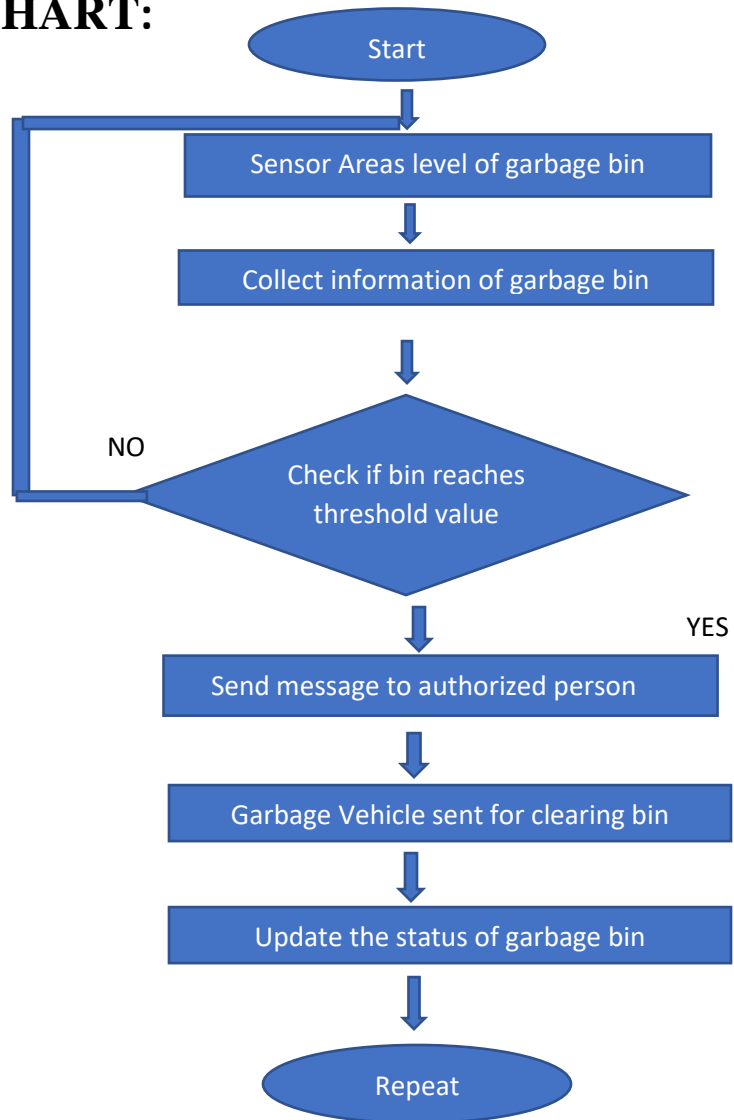
UTILIZATION OF ALGORITHMS, DYNAMIC PROGRAMMING, OPTIMIZATION

Date	November 18, 2022
Team ID	PNT2022TMID28587
Project Name	Smart Waste management in Metropolitan cities.

ALGORITHM:

- 1 .start the program, sensors are used to measure the level of garbage bin.
- 2.Collecting the information of garbage bins which have to be clean.
- 3.Have to check whether the bin reaches the fixed threshold value.
- 4.If reaches then send message to the person who have to clean.
- 5.Finding the shortest distance to reach the bin to be clean.
- 6.Finally, updating the status of bin.

FLOWCHART:



DYNAMIC PROGRAMMING :

A Dynamic programming a method for solving a complex problem by breaking it down into a collection of simpler subproblems, solving each of those subproblems just once, and storing their solutions.

OPTIMIZATION:

Selecting the shortest path for Waste bin collection this is done using the “**Dijkstra Algorithm**”. It consists of the following steps:

1. Start the Initialization of all nodes with distance "infinite"; initialization of the starting node with 0.
2. Marking of the distance of the starting node as permanent, all other distances as temporarily.
3. Calculation of the temporary distances of all neighbour nodes of the active node by summing up its distance with the weights of the edges.

4. If such a calculated distance of a node is smaller as the current one, update the distance and set the current node as antecessor. This step is also called update and is Dijkstra's central idea Setting of the node with the minimal temporary distance as active. Mark its distance as permanent.
5. .Finally, After cleaning the bin the bin status level should be updated &repeat the steps.