

M S Ramaiah Institute of Technology

(An Autonomous Institute, Affiliated to VTU)

MSR Nagar, MSRIT post, Bangalore-54

A Dissertation Report on

SWaCH

Smart Waste Collecting Hopper

Submitted by

Vivin T Wilson	1MS11CS135
Sidharth Panicker	1MS11CS105
Sneha G Bhat	1MS11CS107
Madhu Venkatesh	1MS11CS057

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Prof. Sanjeetha R
Assistant Professor, CSE
MSRIT



DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

MS RAMAIAH INSTITUTE OF TECHNOLOGY

(Autonomous institute, Affiliated to VTU)

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ABSTRACT

One of the major issues in urban areas is waste disposal. The country's per capita waste generation is so high, that lack of timely waste collection results in a huge pile of garbage in the city which in turn leads to unhygienic environment. We propose to develop an automated waste collecting system, SWaCH (Smart Waste Collecting Hopper) to minimize the effort involved in waste collection, in order to make our environment a better place to live in. SWaCH will travel from place to place (like bed-to-bed in hospitals, or shop-to-shop in malls) using the cheap and effective line following technique. The system will be turned on remotely by a server. A user-friendly web portal will be at the disposal of every user who has a unique login. There will a provision for every authenticated user to set a time during which to avail the services of the system. Based on the set timings, the server will use a protocol to communicate the route to be taken, to the robot. The Raspberry Pi will be the brain of SWaCH, while the Arduino will be its heart. Connected to the Arduino are peripherals that either sense the environment or bring about necessary actuation. At every point that SWaCH reaches, it communicates with the Raspberry Pi, in order to receive commands as to what action to take next.

Once waste collection from all specied users is done, SWaCH returns back to its home position. SWaCH will be provided with a host of other features, like an obstacle avoidance mechanism, a reminder mechanism for the user's convenience,etc.

Keywords: unhygienic environment, waste disposal, automatic waste collecting system, reduce human effort, better environment