An Efficient Smart Garbage Dustbin Monitoring System Enhanced with WI-FI Technology

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Abstract - In the recent decades, urbanization has increased tremendously. At the same phase there is an increase in waste production. Waste management has been a crucial issue to be considered. Hence, smart dustbin is a system which can eradicate this problem or at least reduce it to the minimum level. In our proposed system, smart garbage bins enhanced with WI-FI technology.

1. INTRODUCTION

Traditionally, litter bins are emptied at certain intervals by cleaners. This method has several drawbacks such as: [1-9] some litter bins fill up much faster than the rate of emptying and they are full before the next scheduled time for collection. This leads to overflowing of rubbish bin and poses hygiene risks. [10-16] There are special periods (e.g. festivals, weekends, and public holidays) when certain litter bins fill up very quickly and there is a need for increased collection intervals. It is a challenge to maintain a clean city. It involves several factors such as different stakeholders, financial/economical, collection & transport, etc. The work proposed in this paper illustrates how the Smart bin solution empowers cleaning operators to detect cleanliness issues in real time. Thus, the system is able to help in increasing overall productivity and cleanliness[17-21].

An IR sensor consists of an IR LED and an IR Photodiode; together they are called as Photo Coupler or Opto-Coupler. When the IR transmitter emits radiation, it reaches the object and some of the radiation reflects back to the IR receiver. Based on the intensity of the reception by the IR receiver, the output of the sensor is defined[22-29].

1.1 BLOCK DIAGRAM
4. OUTPUT

Fig 4. Bin-1 60 %, Bin-2 25 %

5. CONCLUSION

Fig 4. Bin-1 60 %, Bin-2 60 %

Fig 4. Bin-1 100 %, Bin-2 100 %
The Smartbin system was implemented and deployed on an outdoor testbed. It incorporates mesh network and duty cycle features [27-35]. From the litter bin utilization information, litter bin providers are able to identify and decide whether a particular area needs extra litter bins to be placed nearby or remove/relocate existing litter bins to other places where they are needed. From the litter bin daily seasonality information, cleaning operators are able to better plan when they should send their cleaners to empty the bins, and they are also able to plan which routes their cleaners need to take [36-45].

6. REFERENCES


