

GARBAGE COLLECTING BIN BASED ON IoT

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Abstract

This project's primary goal is to decrease human resources and efforts along with enhancing a smart city vision. Often in our town we see overloading the garbage bins or dustbins placed in government locations. It produces unhygienic circumstances for humans as well as ugliness leaving poor smell to that location. These rubbish bins are networked on the mobile web browser with Wi-Fi html page with the microcontroller-based scheme with IR wireless applications along with central system displaying present trash status. The status will therefore be modified to the HTML page.

Key words: Garbage bins, mobile web browser, microcontroller, IR wireless applications.

Introduction

The Internet and its uses are now an essential component of the human lives of today. As most of the internet process has always been processed through it, we need an active high-speed internet connection. The technology can be described merely as a human-computer-things association[1]. The IoT can control and monitor all the equipment we use in our day-to-day lives. Smart collection bin operates similarly with the mixture of sensors that indicate their weight and distinct concentrations respectively, namely weight sensor and IR sensor[2]. The IR sensors will indicate us the different trash concentrations in the dustbins and the weight sensor will also be enabled to forward its output when its limit level is passed.

Methodology

1. Microcontroller

The LPC2148[3] controller used here is based on a 32/16-bit ARM7TDMI-STM CPU. Combining the microcontroller with 32 kB, 64 kB and 512 kB integrated high-speed Flash memory with real-time emulation and integrated trace support.

2. IR Sensor

This IR sensor shows the amount of trash filled in dustbin and the IR sensor is planted on the ground of the dustbin at three distinct rates to demonstrate us the real amount of trash current in it.

3. Weight Sensor

The weight sensor will be used in garbage bin to detect the quantity of trash. It operates on piezo-resistivity principle. It's a complaint about RoHS.

4. Wi-Fi Module

Wi-Fi Module enables to transmit the receiver side information of the dustbin.

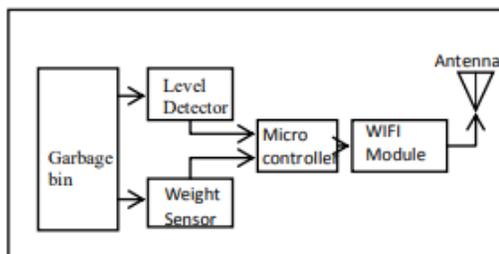


Fig. 1 Transmitter

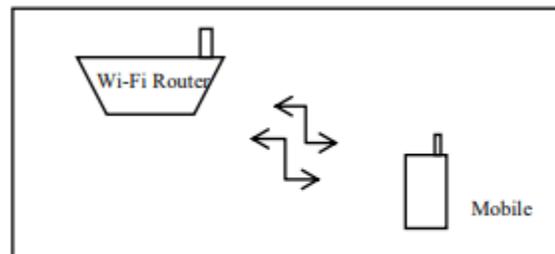


Fig. 2 Receiver

Result

- Dustbin full: 90% (when all 3 level sensors gives output)
- Dustbin when empty: 0% (when first level IR Sensor gives output)
- Dustbin half: 50% (when first level and second level IR Sensor gives output)
- Dustbin is heavy: when threshold weight of dustbin is passes (weight sensor gives output)

Conclusion

This paper makes sure that dustbins will be cleaned shortly after the trash rate reaches its peak. If the dustbin is not washed in a particular moment, the record will be sent to the greater authority who can take suitable action against the contractor concerned.

References

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