

# Segregation of Biodegradable Waste with the Help of LPC2148 Module

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**ABSTRACT:** *India is one of the second largest inhabited nations in the globe. Due to this growing suburbanization the waste material is also increasing extremely wherein waste involves a lot of materials namely metal, plastic, glass and many more which leads to huge loss in materials present in the earth. Now overall we see around, the materials mentioned above are obtaining an essential place in one's life. But the most important thing is now these materials are found in less quality in earth's crust specially metals. In these rarities immense numbers or portions of metals are discarded or thrown out instead of recycling them. In this paper to prevent the material drain different methods are formulated at different levels and one of the systems or techniques is by permitting the materials items used in our kitchen or at hotels or restaurants to be drained. This technology is fundamentally using common methods like metal detection, lead detection to prevent this phenomenon of material drain and abridging less waste to process and making earth a wonderful place to live. The product is designed in order to solve the basic, day-to-day problems faced by the people it is designed and conceptualized to prevent the loss of material pieces from restaurants and hotels.*

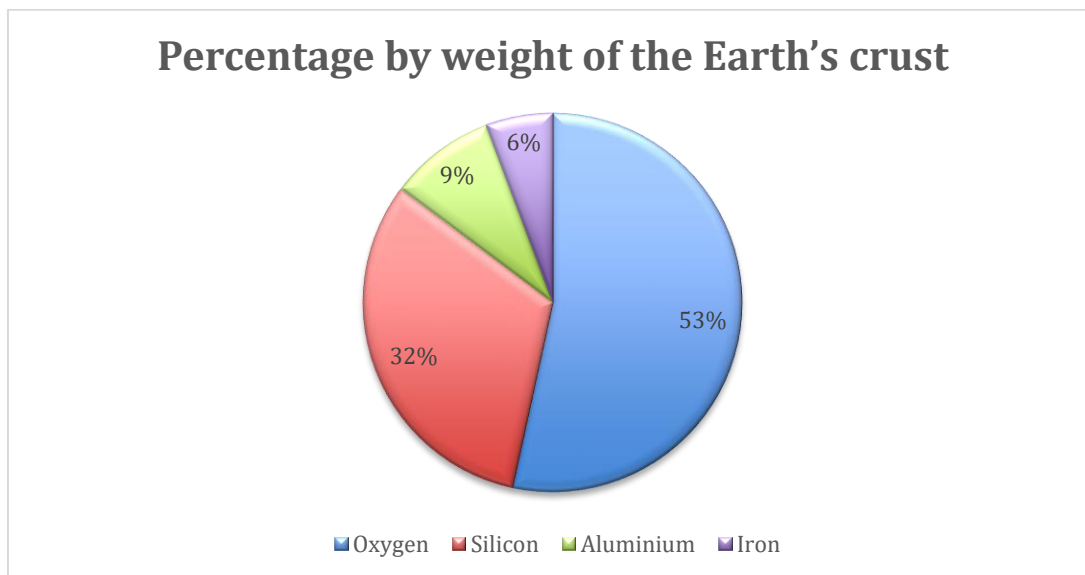
**KEYWORDS:** *Automatic Segregator, LPC2148 Microcontroller, separate compartments, Biodegradable.*

## INTRODUCTION

Long time ago at the time of earlier civilization when the barbers and cruel people circumstantially ignited fire by bumping two pebbles wherein by generating fire they could utilize fire to implement many things namely: they could cook food alternative of having uncooked or raw food to eat, they could keep the animals safe and secure having any metal equipment's. Thus the early civilization found a way to make equipment by melting the metals, this is done possible by utilizing fire to melt it. Then with time to time, generation to generation population in the globe also started increasing. With this expeditious suburbanization the presence of waste is also increasing enormously, this major increase in waste leads to serious issues for each individual in the globe.

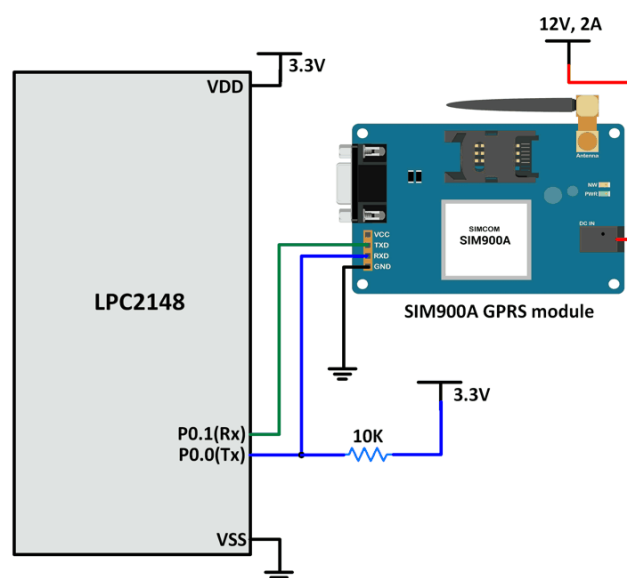
Mainly a large amount of waste is generated in restaurants, hotels, hospitals and so forth. This waste is sometimes directly dumped into the depot or thrown near the sea shore without segregation or any proper treatment. This procedure drives a huge amount of troubles as well as problems. Water present under the ground or in the river, lake, sea etc... gets adulterated (impure). Then these impure groundwater and landfills lead to various diseases and health problems including increase in rats, mosquitos, reptiles, insects and many more. Now comprehensively we see waste materials like plastics, metals, glass and some more other waste materials are engaging a decisive part in human lives. But as we see, then the quantity

of metals found in the earth crust is very limited [1]. If this phenomenon goes on simultaneously then huge amounts of metals will be junked out or thrown out instead of recycling. In our quest to prevent the material drain we have to devise various methods at different levels and one of the methods to do so is preventing the material items used in our kitchen or at hotels or restaurants to go to drain[2].



**Figure 1: The above figure represents the percentage rate of the material present in the earth crust.**

This paper acquires basic methods like metal detection, glass detection and plastic detection to prevent this phenomenon of material drain and reducing less waste to process. This application also includes automatic washing sector and material counter elements. The application designed to prevent the above mentioned problem, save materials and reduce the extra work for any restaurant, hotels or kitchen to wash the crockery.



**Fig 2: LPC2148 Module Working**

### LPC2148 Module Board for ARM Development

- 16/32-bit ARM7TDMI-S microcontroller in a tiny LQFP64 package.
- 8 to 40 kB of on-chip static RAM and 32 to 512 kB of on-chip flash program memory.
- 128-bit wide interface/accelerator enables high speed of 60 MHz operations.
- In-System/In-Application Programming (ISP/IAP) via on-chip boot-loader software.

### REVIEW OF LITERATURE

In this paper, Manisha Jayson et. al. had presented a Smart dustbin, wherein this bin was able to separate waste at fountainhead without any human involvement and can spontaneously alert the waste collection center when the dustbin is completely full. This Smart dustbin will help solve the waste separation problem and help each individual to build an ignomus society, with no compromise on health and hygiene. This application was made up of a durable plastic also it comprises a plurality of compartments i.e. one for dry waste and one was for wet waste, this compartment inbuilt inside the dustbin can be easily removed for the washing purpose. In this paper the smart dustbin design utilizes a motor and a tray mechanism, however when any waste is dropped in the tray then the waste used to be detected by an infrared (IR) sensor.

One the IR sensor detected then the waste moisture sensor gets activated and when the moisture value is more than the set value then it will be considered as a wet waste if low then it will be considered as a dry waste. This dry and wet comparison of waste helps in accurate segregation of the waste and to be dropped in the respected container. The dropping mechanism involves a servo motor wherein the accurate angle movement required by the servomotor is 100 degrees clockwise or anticlockwise so the waste tray will be tilted till the waste is completely dropped off. Sub-bin is installed with an IR

proximity sensor on each side at a moderately full level which act when the waste collected to the fixed level, the fixed sensor reading activates the GSM module to alert the nearest waste collection center or holder of the Smart dustbin to vacant the particular section of the waste bin.

This paper Mohammed Rafeeq et. al. had proposed an Automation of Waste Material Segregation in scrap industry. This method is easy and simple solution of segregation of three types of wastes glass, metal and plastic. It is designed to sort the trash into metallic waste, plastic waste and glass waste ready to be processed separately for the next process of operation. The Method uses inductive sensors metallic items, and capacitive sensors to distinguish between and dry waste. Experimental results show that the segregation of waste into metallic, plastic and glass waste has been successfully implemented using the Automation of material segregation (AMS) method[3].

### CONCLUSION

The contemplated system is an efficacious solution to the present garbage handling complication which efficaciously separate materials namely metal, glass, plastic as well as other waste materials etc. The method proposed in this paper can be effectually dispensed in restaurant, hotel and kitchen material segregation, this method can be also useful in industrial purpose also. The Automatic Material Separation system can efficaciously include IR imaging sensors to identify the thermal image of an object, inductive proximity sensors to detect the metallic materials, and an electrochemical sensor to detect the formation of gas due to large amounts of waste collection. The main aim of this proposed work is to segregate garbage or waste substances in specific compartments along with the segregation technique this project also involves an automatic washing sector and a digital counter to prevent the loss of material. Automatic washing sector provides a lot more help to the restaurant and hotel so that they do not have to put an extra effort to wash the material. This invention leads the primary approach towards salvage and reuse of the material. Reprocessing the garbage materials will lead the economic condition of the globe in a large amount as well as recycling of plastic material will reduce the more and more production of plastics which are causing more harm to the earth and also to human beings.

### REFERENCES

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