A Project report on

SMART SEGREGATOR

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CERTIFICATE

This is to certify that ***KRITHIK K(4NM20EC051), MANNA MOHAMMED ZISHAN(4NM20EC055), RAMEEZ JAMAN(4NM20EC086),*** *bonafide students of N.M.A.M. Institute of Technology, Nitte have submitted a project report entitled "****SMART SEGREGATOR****" as part of the Project based Digital INTRODUCTION TO SENSOR & ACTUATORS, in partial fulfillment of the requirements for the award of Bachelor of Engineering Degree in Electronics and Communication Engineering during the year 2022-2023.*

Name of the Examiner	**Signature with date**
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ABSTRACT

The amount of waste has been increasing due to the increase in human population and urbanization. In cities, the overflowed bin creates an unhygienic environment. Thus degrades the environment, to overcome this situation “Automatic Waste Segregator” is developed to reduce work for the ragpickers, the waste is segregated by human beings which leads to health problems for the workers. The proposed system separates the waste into two categories namely wet and dry waste. This developed system is not only cost-efficient but also makes waste management productive. Each of the wastes is detected by the respective sensors and gets segregated inside the bins which are assigned to them

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Chapter 1

INTRODUCTION

The abundant increase in population led to the improper waste disposal. Managing garbage consumes more time and requires a lot of manpower. In recent years waste disposal is becoming a huge cause. The most common method of waste disposal is unplanned and it is dumped at landfill sites this method causes ill effects to all living beings. This method can generate liquid leachate and other fungi which pollute the surface and underground water and also accelerates harmful diseases which leads to the degradation of the aesthetic value of the environment.

In India recycling of solid waste is done by the ragpickers who play an important role in this process while doing the segregation, ragpickers get affected with many health problems such as skin infections, and respiratory problems the dependent of ragpickers can be reduced if the automatic waste segregation takes place in the dustbin.

The waste is segregated into basic main streams such as dry, and wet. This waste has a large potential for recycled and reused. even though there are multiple industrial waste segregation present , it is always better to segregate the waste at the source itself. The advantage of doing this type of segregation is, there is no need for rag pickers to segregate the waste.

Chapter 2

IMPLEMENTATION

- Gather 2 cardboard sheets
- Make the holes in the sheets so that you can fix the holder to it.
- Then on the upper side of the holder stick the servo motor pointing straight ahead.
- Then take a plastic stationary scale and make a hole in it at its bottom which will be a little less than the diameter of the motor shaft
- Stick the other sheet on the top of the scale. Make sure it's fixed tight and doesn't move.
- Place the moisture sensor and touch sensor on the top of the plate.

2.1 HARDWARE COMPONENTS

- Arduino: Arduino is a microcontroller that will be used in this project
- Moisture Sensor: we will be interfacing Arduino with a moisture sensor.
- Touch Sensor: we will be Interfacing Arduino with the Touch sensor.
- Servo Motor: Servo Motor is operated with Arduino.

2.2 SOFTWARE COMPONENT

- C++ Programming: For programming Arduino, we will use C++ Programming to an intermediate level

2.3 WORKING

- Step 1: Waste is put and lands on moisture sensor.
- Step 2: Depending upon the Threshold set Moisture sensor classifies it as dry or wet.
- Step 3: As soon step 2 is done Servo Motor runs to either direction depending upon the type of waste and the waste goes in the appropriate compartment.
- Step 4: The whole process is autonomous and Continuous.

Chapter 3

RESULT AND DISCUSSION

With growing urbanization and increasing population, effective waste disposal is a major concern. Manual waste segregation is very expensive, time-consuming, and inefficient. The proposed Smart segregator is an effective waste segregation system that requires no human intervention to separate dry and wet waste and paves the path for timely collection and disposal. The proposed system can be deployed on a domestic scale in households or on a large scale in the public sector.

Chapter 4

CONCLUSION

The Automatic Waste Segregator has been implemented for the segregation of waste into dry and wet waste. Smart dustbin is an innovative step in the direction of bringing a change in the current garbage disposal system.

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