MIT | Academy of Engineering

School of Computer Engineering and Technology

Presentation for SY Final Minor Project Presentation

Academic Year 2021-22(SEM-I)

IOT Based Garbage Monitoring system

Guide:

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Introduction

- Use of garbage tank is less. Disease is increases. Especially in rural areas, where solid wastes are dumped which overflows on streets. As new technology developed and with modern equipments, the level of waste produced increases every day. In order to overcome this issue, we are proposing the “IoT based smart garbage system” which is developed for both rural and urban areas to solve the garbage disposal related problems.

Problem statement

The Detection, Monitoring & Management of waste

Objectives to be achieved

- To maintain the level of cleanliness in the city and form an environment which is better for living organism.
- made use of the level Sensor to monitoring the level of waste-bin.

Literature Review

- **Title: garbage monitoring system using Arduino engineering**
- **Authors: Fetullah Abdurrahman ,Sileshi aweke ,chera Assefa.**
- **Published On: 2018.**

- **Summary:-**

To make the system of automated garbage monitoring system using Arduino they had used a different sensor i.e. for sensing level of garbage ultrasonic sensor, for processing data Arduino, for informing information LED, sending warning through GSM and PIR, buzzer for informing garbage overflow. This paper has some suggestions that they need to add camera for taking image of surrounding. Fetullah Abdurrahman et.all[1].

- **Title: smart garbage monitoring system**
- **Authors:. Norfadzlia mohd yusof,aiman zakwan jidin and Muhammad izzat Rahim .**
- **Published On: 2017**

- **Summary:-**
- Norfadzlia mohd yusof,aiman zakwan jidin and Muhammad izzat Rahim was worked on the waste management .they had used Arduino uno,gsm,and different LEDs i.e., green and red . they was created certain threshold frequency .if that frequency crossed then first green LED will blink to inform residential people and if the garbage bin is full then red will blink and that inform to municipality department. In this paper of smart garbage monitoring system using Arduino and blynk was able to perform its function such as garbage level monitoring through LCD and blynk application, dustbin location detection and notification to municipality when dustbin is full[2]

- **Title: smart garbage monitoring system using Arduino.**
- **Authors:. siti sarah mdllyas,Muhammad Amirul rosyad mohd halim ,nadia abdul Wahab ,norfiza lbrahim.[computer and mathematical sciences university technology]**
- **Published On: 2021.**

- **Summary:-**

- in this paper Nikita Ahiret.all was used sensors to detect how much waste are there in bins . they was used WIFI module For sending massages to municipality department for collecting waste from bins .if that time is not available then the garbage will compress until that garbage collector doesn't come. The system is designed in such a way that it avoids the overflow of the dustbin by sending alerts to the borough with help of a microcontroller. It also provides the verification process after cleaning the dustbin. The level of dustbin can be calculated by using ultrasonic sensor. Arduino is used for data processing and GSM for sending massage.[3]

- **Title: waste management system using Arduino.**
- **Authors:. nikita ahire,komal chaudhri,dhanshree dhuri , varsha salunkhe [department of computer engineering malad.**

- **Published On: 23 feb 2020 .**

- **Summary:-**

- In this paper, an integrated system of Wi-Fi modem, IoT, GSM, Ultrasonic Sensor is introduced for efficient and economic garbage collection. The developed system provides improved database for garbage collection time and waste amount at each location. It can automatically monitor the garbage level send the information to collection truck. The technologies which are used in the proposed system are good enough to ensure the practical and perfect for solid garbage collection process monitoring and management for green environment[4].

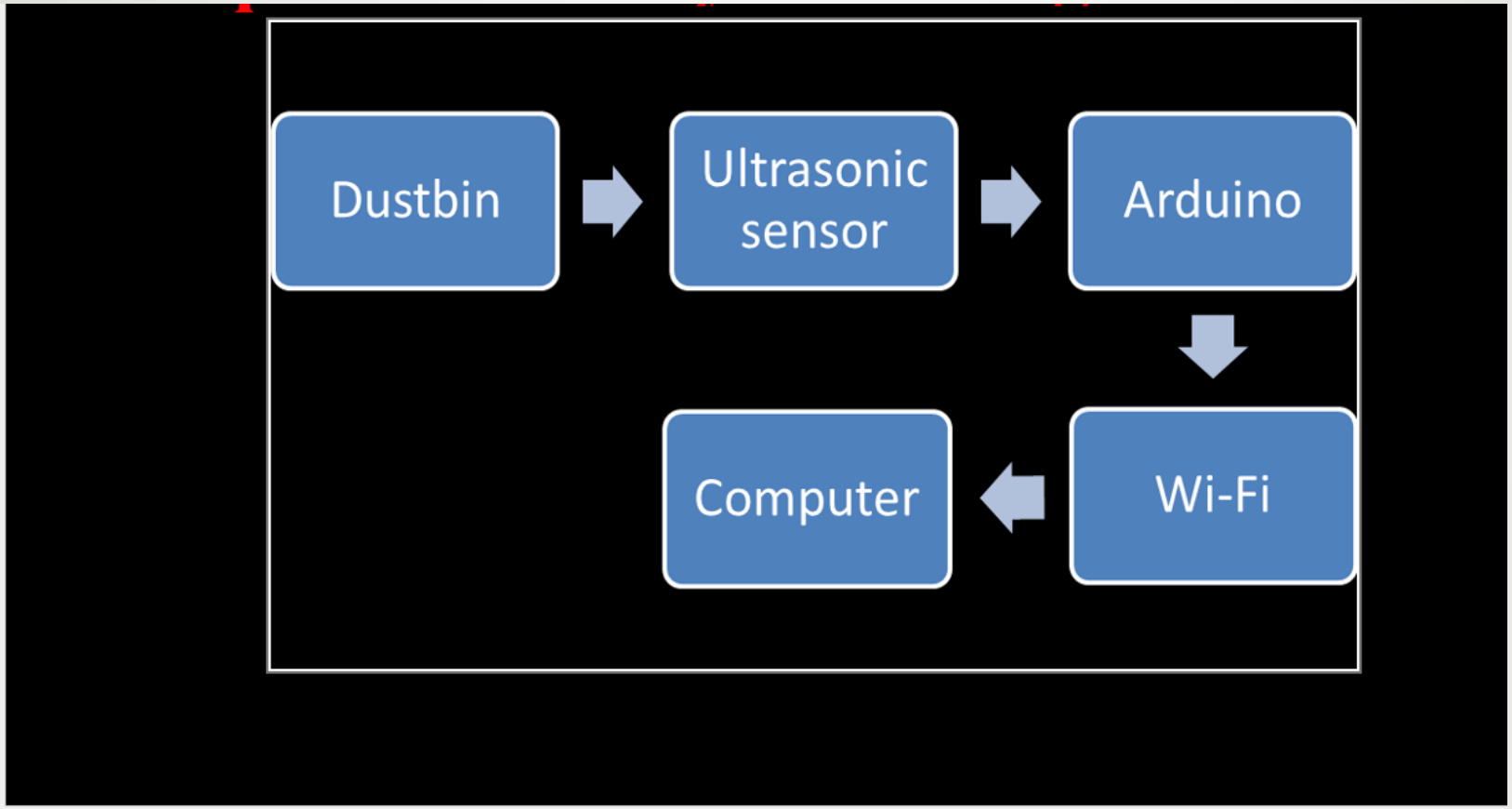
- **Title: garbage monitoring system .**
- **Authors:. G.Anushri1 , A.Manikandan2 , P.Nivas3 , K.Vignesh4 1Asst.Prof, Sree Sowdambika College of Engineering,Aruppukottai,Tamilnadu,India.**
- **Published On:. 2018.**

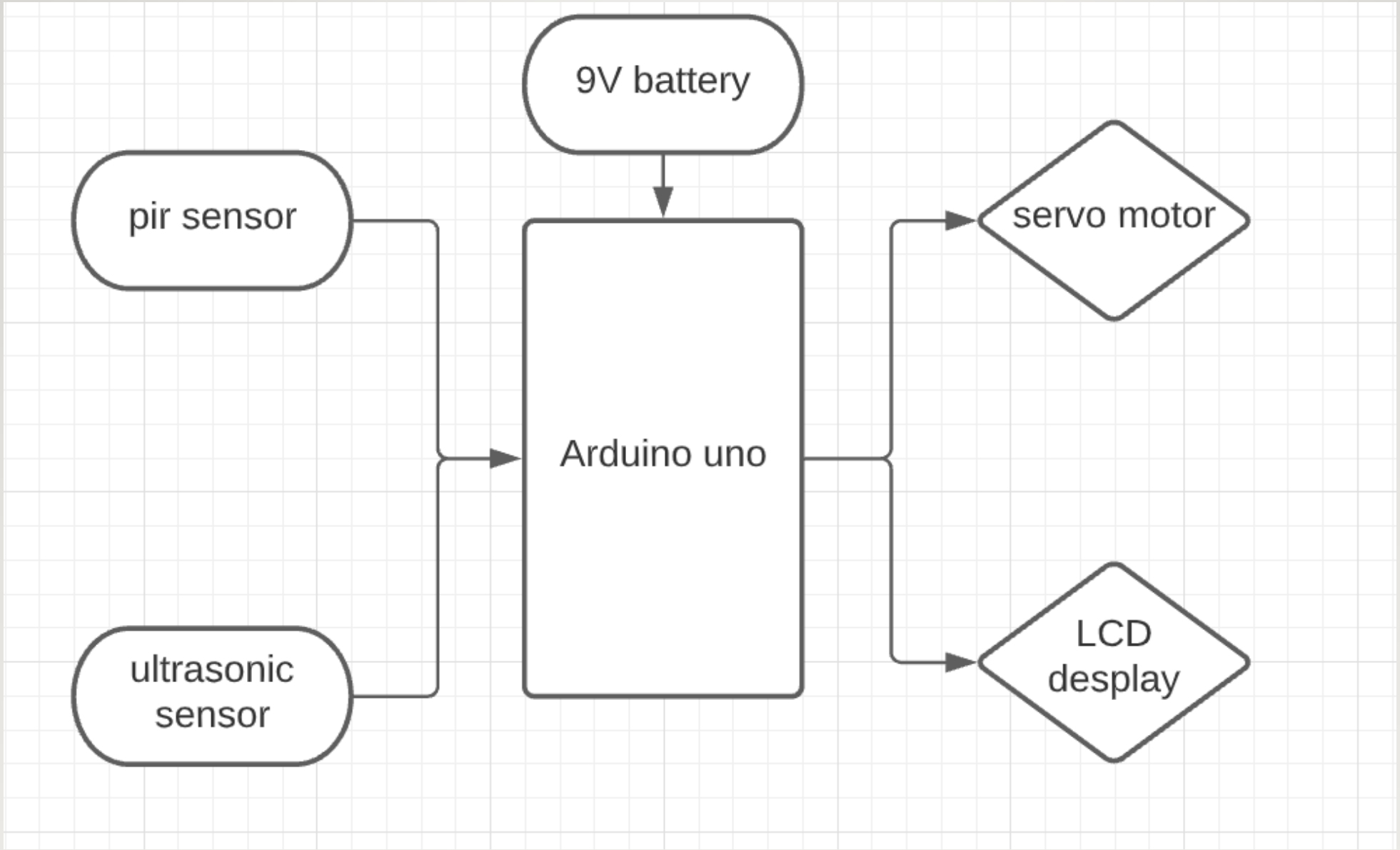
- **Summary:-**

In this paper, GSM (Global System for Mobile Communication) and ARM7 controller helps to create a system which will monitor the Garbage Bins. The sensors are placed in the common garbage bins. When the garbage reaches the 6 limit, then message will be given to ARM 7 Controller[5].

- *

Proposed Block System/Design/structure




9V battery
pir sensor
servo motor
Arduino uno
ultrasonic sensor
LCD desplay

Block Diagram Explanation

What our system does is it gives a real time indicator of the garbage level in a bin at any given time. In this Project, an Ultrasonic Sensor is used for detecting whether the bin is filled with garbage or not. Here Ultrasonic Sensor is installed at the top of bin and will measure the distance of garbage from the top of bin, and we can set a threshold value according to the size of bin. If the distance will be less than this threshold value, means that the bin is full of garbage and if the distance will be more than this threshold value, then we can say dustbin is empty.

Methodology

- A mechanism to close the lid of dustbin in case of rain is implemented in the proposed system. This avoids bad smell while nearing the garbage. Also, the waste remains dry.
- The required number of additional dustbins to adjust the load is introduced.
- The filling rate of each of the dustbins is maintained in cloud. Periodic notifications to the monitoring stations about the status of the garbage in the tanks. Battery is powered with the solar cell for efficient energy usage.

Software/hardware Requirement

- Arduino Uno
- Pir sensor
- Resistor
- Breadboard
- Connecting wires
- Servo motor
- Ultrasonic sensor

Applications

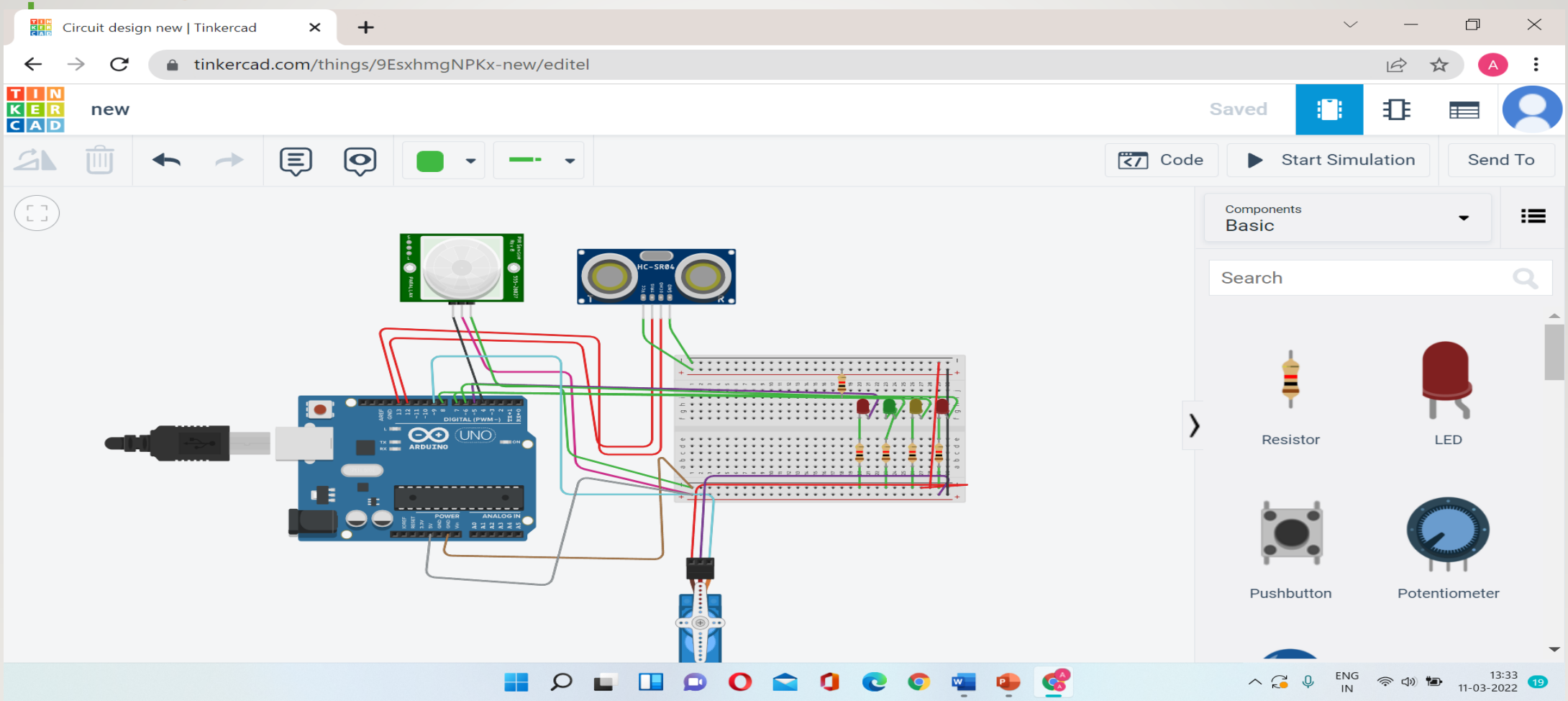
a)Reduce environment pollution.

b)To measure garbage level .

c) Wireless garbage monitoring.

d) Support digital India.

Design Layout/Screen shot output(code if any)



https://www.tinkercad.com/dashboard?type=circuits&collection=designs

Schematic view :-

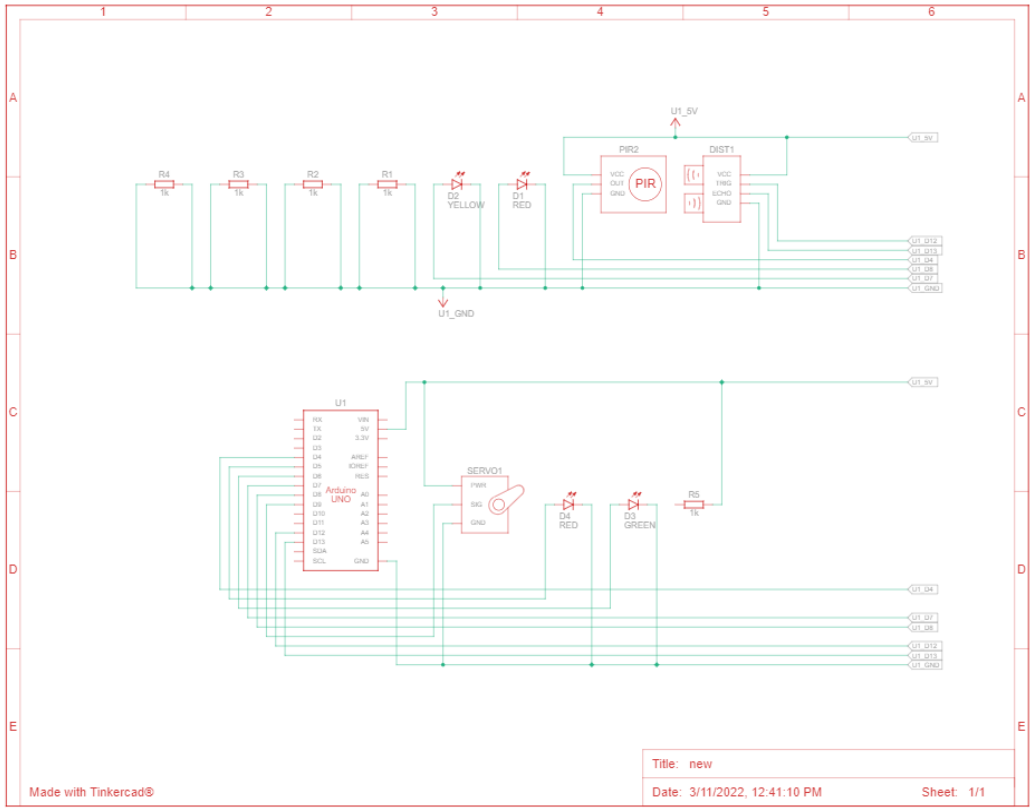
tinkercad.com/things/9EsxhmgNPKx-new/editel

new

All changes saved

Schematic View

Download .PDF



Conclusion, Future work & Drawback

CONCLUSION

We design an efficient garbage monitoring system which can be used to monitor the level of garbage in the dump. This data can be further used to plan garbage collection trips more efficiently. Ultimately reducing overflowing bins and helping have better public sanitization.

FURTHER WORK

- The employees can check the status of these bins anytime on their mobile phones. This can prove to be a very useful system if used properly.

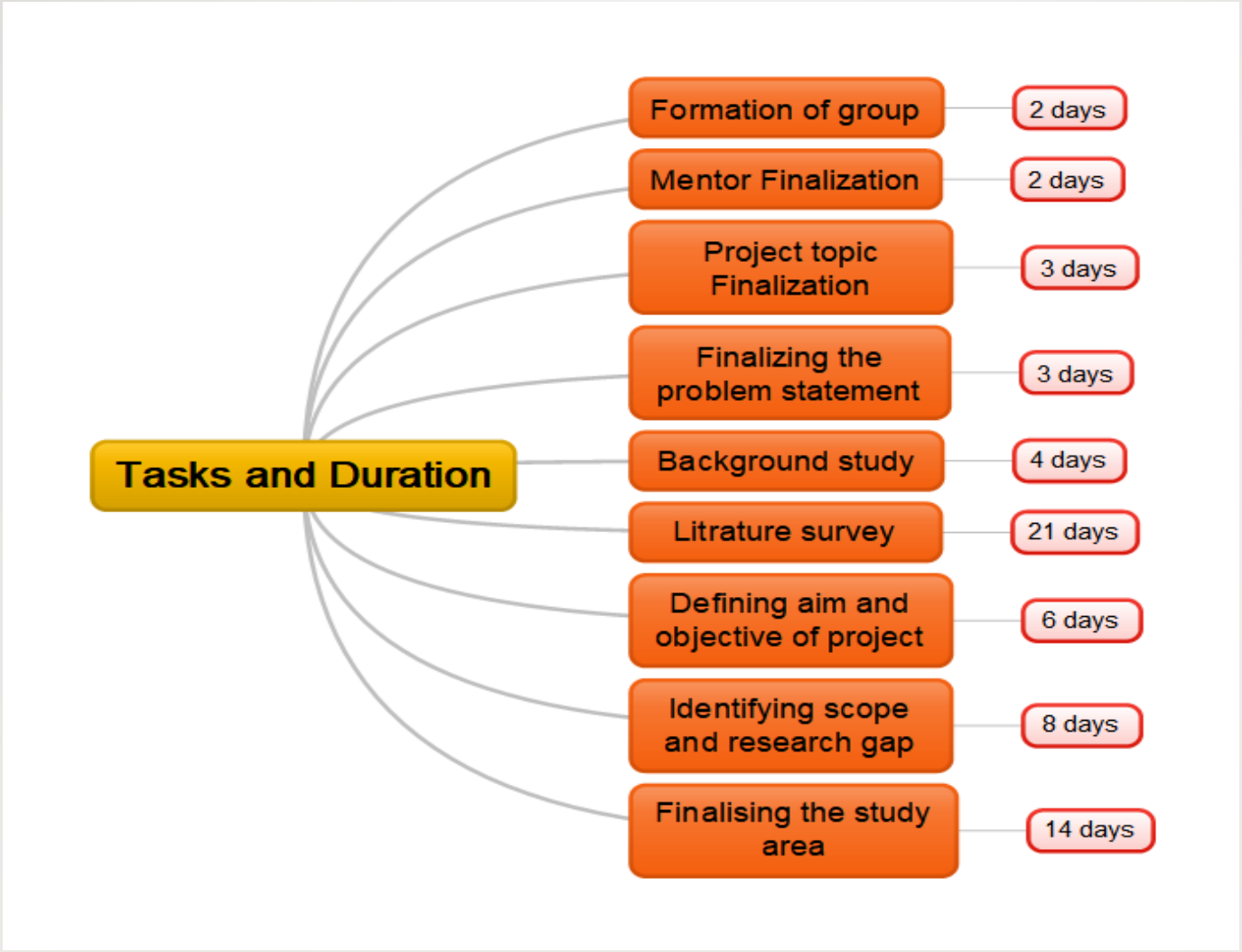
- The system can be used as a benchmark by the people who are willing to take one step further for increasing the cleanliness in their respected areas.

- Ultrasonic sensor is being used in this system to check the level of garbage in the dustbins but in future various other types of sensors can be used with the ultrasonic sensor to get more precise output and to take this system to another level. Now this system can be used in certain areas but as soon as it proves its credibility it can be used in all the big areas.

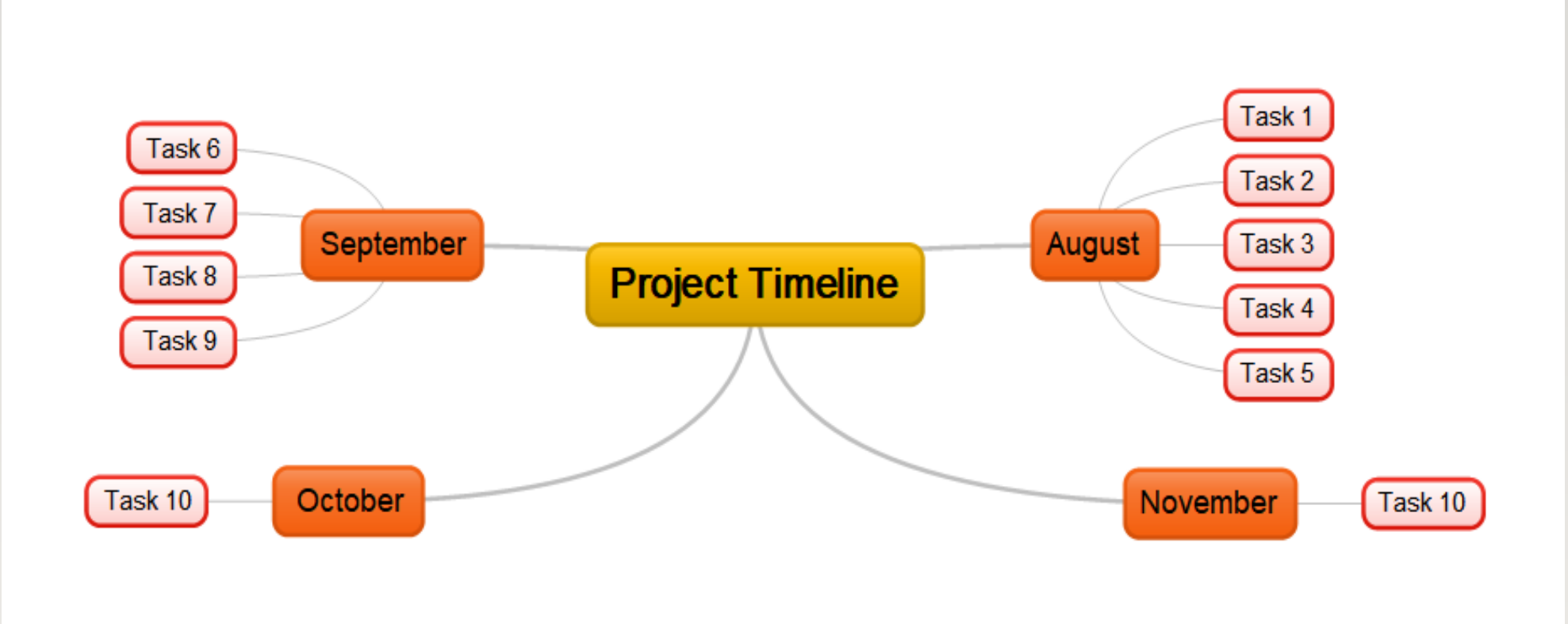
DRAWBACK

- 1) it requires a well-structured hardware
- 2) The onetime cost of installation will be higher than the present technique.

PLANNING


Tasks and Duration
Formation of group
2 days
Mentor Finalization
2 days
Project topic Finalization
3 days
Finalizing the problem statement
3 days
Background study
4 days
Litrature survey
21 days
Defining aim and objective of project
6 days
Identifying scope and research gap
8 days
Finalising the study area
14 days

Overview


Project Timeline
August
Task 1
Task 2
Task 3
Task 4
Task 5
September
Task 6
Task 7
Task 8
Task 9
October
Task 10
November
Task 10

References

- **References for literature survey :-**
- 1] Fetullah Abdurrahman ,Sileshi aweke ,chera Assefa [garbage monitoring system using Arduino ios gernel of computer engineering]2018.
- **2]** Norfadzlia mohd yusof,aiman zakwan jidin and Muhammad izzat Rahim in 2017.
- **3]** siti sarah mdllyas,Muhammad Amirul rosyad mohd halim ,nadia abdul Wahab ,norfiza Ibrahim.[computer and mathematical sciences university technology]in 2021.
- **4]** nikita ahire,komal chaudhri,dhanshree dhuri , varsha salunkhe [department of computer engineering malad] in 23 feb 2020 .
- **5]** G.Anushri1 , A.Manikandan2 , P.Nivas3 , K.Vignesh4 1Asst.Prof, Sree Sowdambika College of Engineering,Aruppukottai,Tamilnadu,India2018.
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Thank You!!