

KARNATAKA STATE COUNCIL FOR SCIENCE AND TECHNOLOGY

Indian Institute of Science Campus, Bengaluru -560012

Telephone: 080 -23341652, 23348848, 23348849, Telefax: 23348840

Email: spp@kscst.iisc.ernet.in Website: www.kscst.iisc.ernet.in/spp.html or www.kscst.org.in/spp.html

PROJECT SYNOPSIS (40S_BE_0549)

1)	Title of the project	DEVELOPMENT OF FRAMEWORK FOR GARBAGE MANAGEMENT SYSTEM USING IoT
2)	Name of the college and Department	K.S.School of Engineering and Management, Department of Computer Science and Engineering.
3)	Name of the Guides	Mr. Santosh Kumar J(santosh.kumar.j@kssem.edu.in/9035636616) and Mrs. Shruthi U (shruthi.u@kssem.edu.in/9535566815)
4)	Name of the student-1	Aiman Sadia 1kg13cs002@kssem.edu.in Mobile No:8892627870
5)	Name of the student-2	Dhanalakshmi.:P 2013cs023@kssem.edu.in Mobile No:9741266806
6)	Name of the student-3	Kalpitha.C 2013cs031@kssem.edu.in Mobile No:8123845822
7)	Name of the student-4	Mariya Kouser 2013cs048@kssem.edu.in Mobile No:8496868052
8)	Keywords	IoT, Arduino board, Ethernet Shield, Sensors
9)	Introduction	<p>The scenario of cleanliness with respect to garbage management is degrading tremendously. Proper garbage management techniques are very crucial to stop the garbage menace which has spread everywhere especially in cities like Bengaluru. With this condition of garbage crisis there is a need of applying a method that improves the garbage problems. Therefore we are developing a framework to detect garbage level using IoT based on sensors and web applications.</p> <p>IoT Garbage Monitoring System is a very innovative system which will help to keep the cities clean. This system monitors the garbage bins and informs about the level of garbage collected in the garbage bins via a web page to the authorities. The system uses ultrasonic sensor and IR sensor placed over the bins to detect the garbage level and compare it with the garbage bins depth. The bins are identified with the help of unique IDs attached to the sensors. This helps in tracking various bins across the city. Thus this system saves the time of the collectors by allowing them to go to the locations where the garbage has to be cleared rather than going to all the bins.</p>

		<p>The web page gives a graphical view of the garbage bins and highlights the garbage collected in colour in order to show the level of garbage collected.</p> <p>Garbage management system is developed to present an efficient method of managing the garbage and also helps in timely collection of garbage from the bins. This system prototype favours us to connect smart sensors to maintain segregation allowing easy recycling of dry waste and easy processing of wet waste into manure and fertilizers.</p>
10)	Objectives	<p>In recognition the importance of Management of waste, this project is tried to achieve the following objectives:</p> <ol style="list-style-type: none"> 1. To collect the data from the sensors attached to the bins regarding the level of the garbage. 2. To show notification about the bins to indicate that the bin is filled and is empty. 3. To develop a webpage in which the graphical images of the filled bins are depicted. 4. To keep track of the bin using unique identification that determines the various bins across the city. 5. To provide pop up notification on the webpage when the bin is filled.
11)	Methodology	<p>Before starting the work , detailed literature survey are carried out on</p> <ol style="list-style-type: none"> 1. The bins are designed using ultrasonic and infrared sensor to check the level of the bins by measuring the distance between the object and the sensors. These sensors send the data in the form of signals. 2. The bins are represented via graphical images, which indicates that the bin is full or empty and hence notification is sent when the bin is full with garbage. 3. A dynamic webpage is developed using Ajax which shows consistent level of bin. 4. Every bins across the city is identified by unique ID which helps

		<p>us to track the bin and allows us to visit only those bins which are full. Thus saves time.</p> <p>5. When the bin is fill it displays notification message on the webpage.</p>
12)	Results and conclusion	<p>Smart garbage management system is implemented using sensors, microcontroller and Ethernet shield. This system assures the cleaning of dustbins soon when the garbage level reaches its maximum. This is a real time waste management system by using smart dustbins.</p> <p>Conclusions:</p> <ol style="list-style-type: none"> 1. This system also helps to monitor the fake reports and hence can reduce the corruption in the overall management system. 2. This reduces the total number of trips of garbage collection vehicle and hence reduces the overall expenditure associated with the garbage collection 3. With the help of this system we can keep track on the government service vehicles to ensure that they carry out their services faithfully and contribute to healthy environment to the citizens.
13)	Scope for future work	<ol style="list-style-type: none"> 1. This system can be implemented for segregation of waste into metallic, dry and wet waste. This can be achieved with the help of capacitive sensing and metallic waste with the help of inductive sensing. 2. Blower mechanism can also be used to segregate dry and wet waste. Plastics can be segregated from the collected waste and also be processed based on their types, grades and colors. 3. In order to provide solution for irregular waste disposal, make use of biosensor sensor, weight sensor and height sensor