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Automatically Operating dustbin based on Touchless and Android interfaces

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ABSTRACT: The day today life of humans has been suffering affected by the outbreak of the COVID-19 pandemic. Principle guidance to protect against COVID-19 is to reduce physical contact with people around you. The unexpected effect of following this tripartite guidance to be 'safe' is to limit the touch of your body. This has posed many unexpected challenges for more than 180 million people in the world.

That is why the world needs to be less connected and less touched. Things that are involved in many small works in daily our life, which you need to touch. Dustbin is one of them.

Dustbin using everywhere in our world. Mostly Hospital, Mall, Social places, home, Offices Everywhere. Hence, we need upgrade it, which prevent the spreading of viruses, we getting to develop Automatically operating Smart Dustbin based on Touchless.

This paper presents the design and construction of a Automatically operating Smart Dustbin based on Touchless. The system is a reliable circuit that takes over the task of sensing object and hand motion in the front of dustbin very accurately and beeps a warning alarm when the dustbin closing.

KEYWORDS: Automatically Operating dustbin, Ultrasonic sensor dustbin, Infra red sensor based dustbin, PIR sensor based dustbin, Android Operating dustbin

I. INTRODUCTION

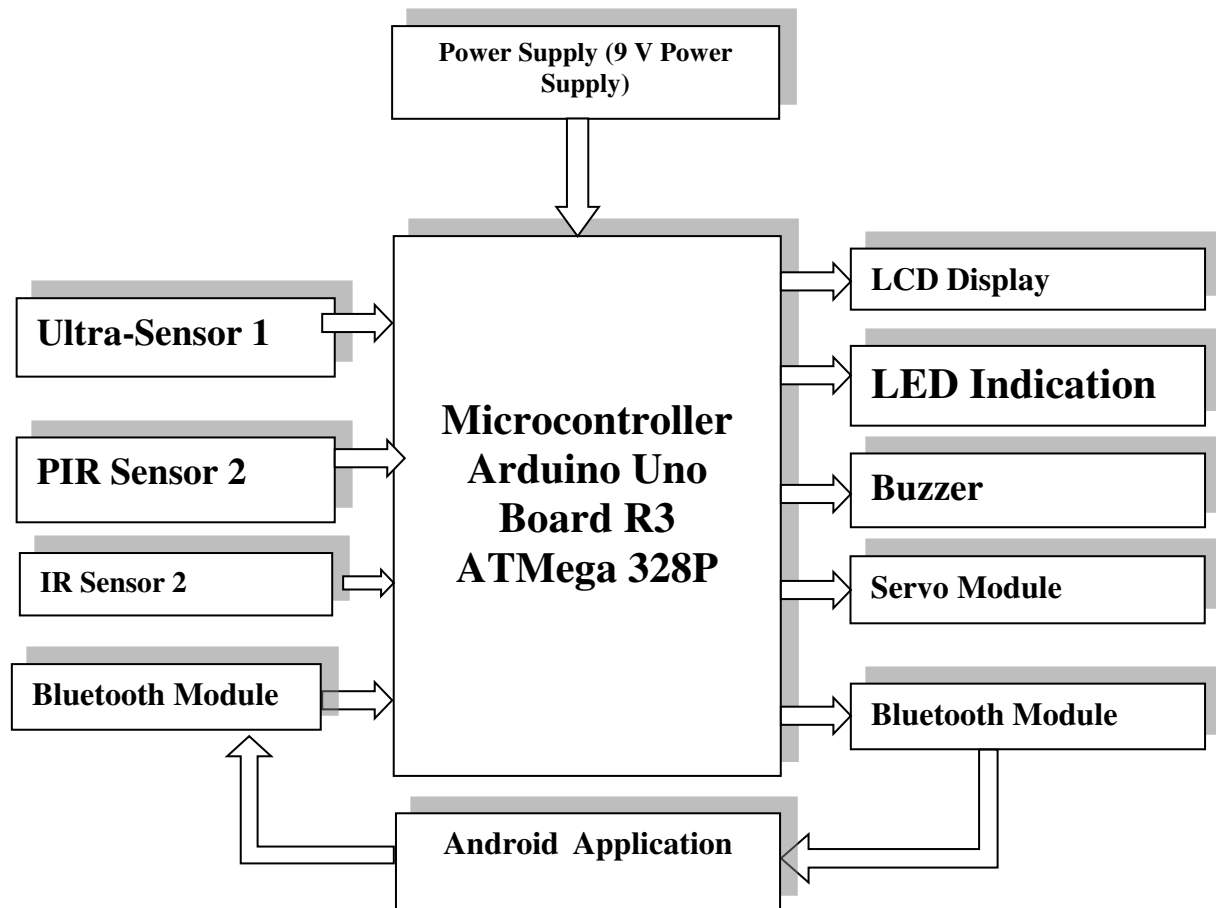
We need to develop Automatically Operating dustbin System which is interfacing with Android application System. In this the Automatically Operating dustbin operates with Servo motor. and Servo motor received commands from Sensing object by sensor. When this dustbin is full it senses by second sensor. The project aims to prevents the contact with dustbin, odour of dustbin and showing alarm to Facility team when it is full. This is enhancing the human life day to day life style. All the system is designing and building personnel devices for tracking, Corporate Infrastructure management (large dustbin), hospital and public places as well as home. Nobody has required this type of products but after the Covid 19 we need such like product which provide contactless., especially in such pandemic (Covid-19) and uncontrolled conditions of public hospital.

We can trust on these techniques that are safest for human life. Secondly, in order to provide sensible and mechanism automatically operating to help manage the crowded places to prevent spreading of viruses.

In order to do this, there is need to have a deep and fundamental understanding of crowd dynamics and Touching points and touchless operation in general life. These systems have that can intelligently explore the parameter space to account for uncertainty and error.

Related work

A. Basic Block Diagram:



B. Mainly this block diagram consists of the following essential blocks.

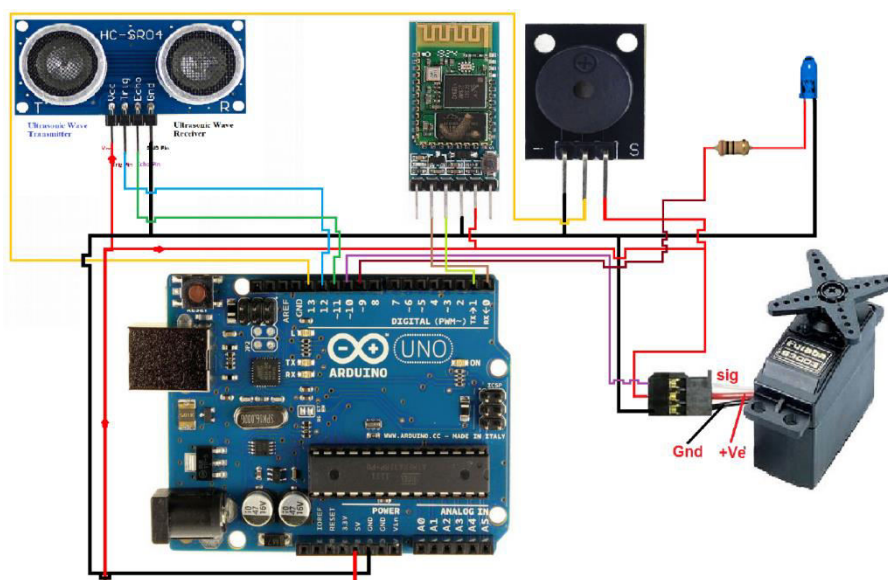
- Power Supply
- Infra read sensors
- Ultrasonic Sensors
- PIR Sensors
- Microcontroller Arduino Uno Board R3 ATmega 328P
- LED
- LCD Display
- Buzzer
- Servo Motor
- Bluetooth Controller
- Android application

II. PROPOSED ALGORITHM

A. Design Considerations:

- Start the Process
- Ultrasonic waves emitting from Ultrasonic transmitter
- Ultrasonic waves received from Ultrasonic receiver
- Travelling time counted by sensor
- If Travelling time is in between average value, command sending to Servo motor
- Continue the process, whenever the interruption occurs.

B. CIRCUIT DIAGRAM:



III. SIMULATION RESULTS

Automatically operating dustbin testing has been completed in the development and realization of any design, be it hardware based, software based or both. The various components and their mother board with components have to be tested to ensure that all the components as well as modules on board or systems are working in Normally and in good working condition.

The automatically operating dustbin system did not working in the nature of Sensors, status of reading input data in Smart dustbin, Bluetooth module interface with Android application, reading status of System through application and required output. We needed study and kept observation on specification of modules and working structure, programming part for where isolated and troubleshoot to determine the troubles and cause of the failure through careful analysis, that is examination of the working principles of the connected components.

After completing the whole circuit, testing and developing the Automatically operating System, we test it has been observed that it works properly. Therefore, it can be said that it is ready for Human user friendly. The complete system is shown in the following figure.

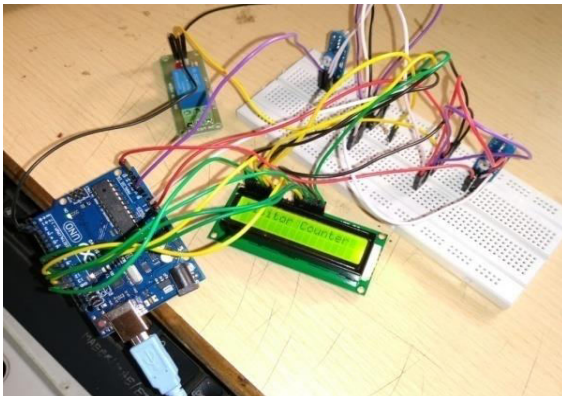


Fig1 Testing of Sensors

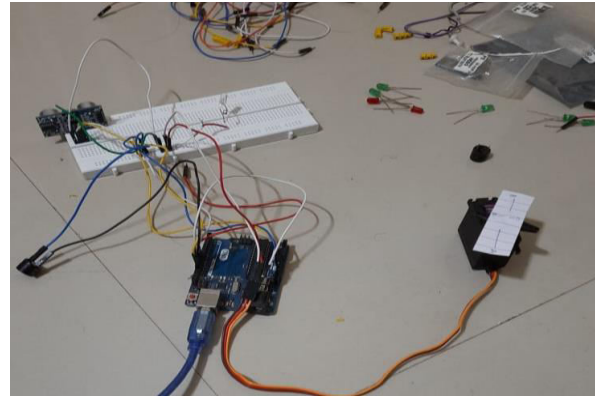


Fig2 Servo motor testing, Rotate 90 degree

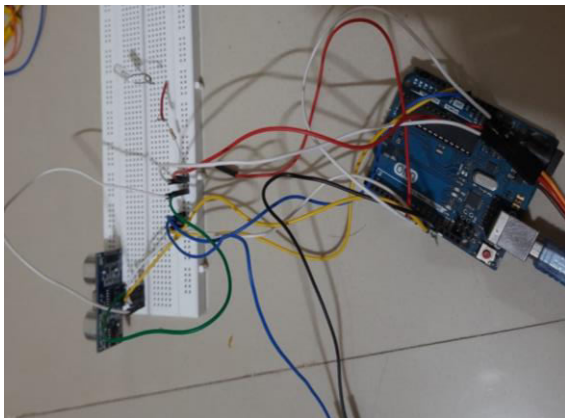


Fig3 Testing of Ultrasonics sensors

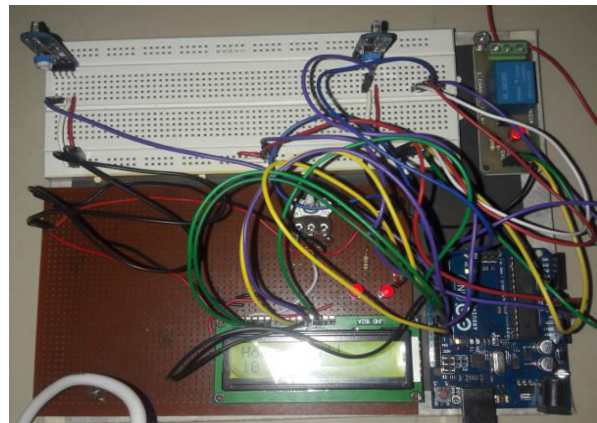


Fig 4 complete Circuit design is ready for implement

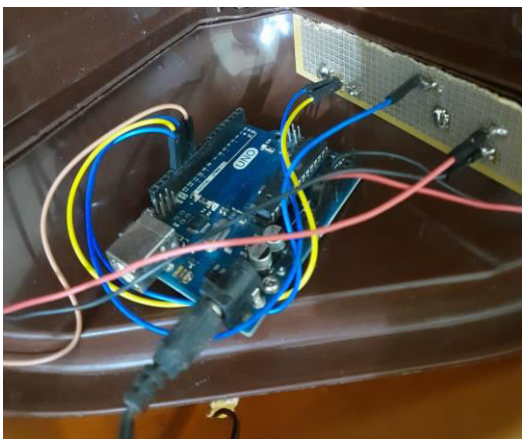


Fig5 All components and circuit fixed in dustbin



Fig6 Automatically Operating dustbin ready

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