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# Survey on IoT based Society Management and Automation

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**Abstract -** Housing society management is an integral part of daily life in urban areas. Housing Society Management is responsible for our day-to-day needs such as water supply, electricity, and a variety of other items that play a critical role in residential life, either directly or indirectly. The majority of the time, society management interacts in a conventional fashion. There are some disadvantages to this. Daily reminders, weekly meetings, cultural activities, miscellaneous contacts for daily needs, high priority correspondence, and many other items that might not be communicated adequately in the present scenario because most things are done manually. Transparency is lacking. With the rise in energy usage and population, it is more important than ever to conserve energy in every way possible. One of the major causes of energy waste is the inability to access and manage appliances from afar. Users offer instructions to these systems via a web or Android program. This device can communicateusing a variety of methods, including WiFi. Current systems have a variety of regulating devices and configurations. Such systems have already been discovered in a number of locations for a wide range of applications. This paper provides a literature review, a survey table on various current implementations, the differences between Arduino and Raspberry Pi, and IOT component descriptions.

***Key Words***: Society Management, Maintenance, Android, Arduino, Internet of things (IoT), Automation, Notification.

## 1. INTRODUCTION

This paper includes survey on society management and automation with a literature survey of different papers, survey table on existing applications, comparison between Arduino & Raspberry Pi and different components of IOT.

## 2. LITERATURE SURVEY

Android is the most common forum for smart mobile communication these days. Mobile computing has had a huge effect on our everyday lives as mobile devices have become more efficient and distributed. Since mobile phones are now commonly used by all, an android application offers an efficient medium for communication. Since Android is an open-source operating system, it is lightweight and customizable. [2]

In general, all work in a Society is determined in meetings, and maintenance bills, as well as member contact details are manually registered. There is no automatic mechanism for doing all of the things that happen in society in order for participants to be aware of what is going on. Members will log in with their own account and stay up to date on society events using the Society Management System. The system has automated functionality for calculating monthly maintenance bill and member can view their bill status on their account. [1] The Internet of Things is a philosophy in which each device is given an IP address, and everyone can recognize the device on the internet using that IP address. The Internet of Things has the power to alter people's everyday lives. People nowadays prefer automated systems to manual systems. [4] To supply the water equally, various technologies have been invented using embedded system. [3]

The housing society system [1] produces monthly maintenance, e-receipts, and allows members to check the status of their bills on their account. The system has not yet been implemented. This method necessitates the use of the internet. Via an Android program, society can interact in a smart way. [2] This application uses Notification Technologies to control the housing community. Residents may use the system to communicate with one another and form social networks. There is no need to consult with the chairman panel in person to lodge a complaint or make a suggestion. It will be very simple to promote one's company and provide different services to people using this application. The system automates light and water tank. [4]

## 3. Survey table of existing applications

Different existing applications available on google play store for android smart phone were observed and finally survey table is generated. Table 1 shows existing applications' name withtheir functionality.

Table 1. Survey table of existing applications

| Application Name / Functionality | Society Connect [9] | Society App: Groups & Clubs [5] | Neighbium [8] | Society N More [7] | Snb – Apartment and Housing Society Management App [6] | Smart building maintenance [10] |
|---|---|---|---|---|---|---|
| Meeting notification | No | No | Yes | No | Yes | No |
| Event notification | No | Yes | No | Yes | No | Yes |
| Maintenance calculate | Yes | Yes | Yes | Yes | No | No |
| Booking hall | No | No | Yes | No | Yes | No |
| Sell/rent | No | No | No | No | No | No |
| Complain | No | Yes | No | No | Yes | No |
| Suggestion | No | No | No | No | No | No |
| Automation | No | No | No | No | No | No |

## 4. Comparison between Arduino & Raspberry Pi

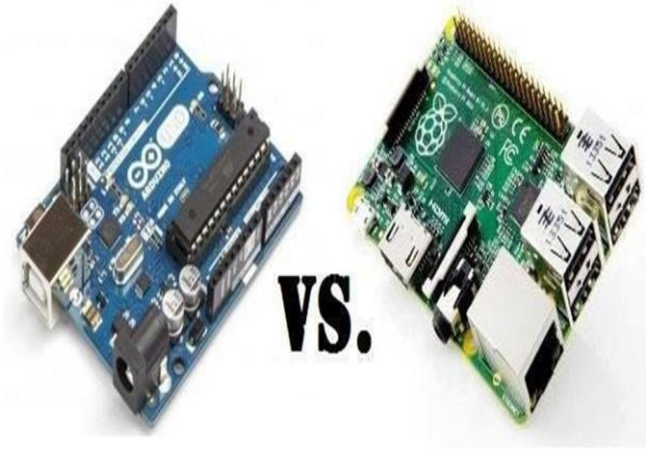


Fig. 1: Arduino v/s Raspberry Pi [15]

Arduino and Raspberry Pi are used as a tool for creating electronic projects. The Arduino is considered a part of the Raspberry Pi. Table 2 shows the difference between Arduino and Raspberry Pi.

Table 2: Difference between Arduino and Raspberry Pi [16]

| Spec | Arduino Uno | Raspberry Pi 3 B |
|---|---|---|
| CPU Type | 8-bit Microcontroller | 64-bit Microprocessor |
| Operating System | None | Some flavor of Linux |
| Storage | 32 kB flash | Depends on size of SD card |
| Memory | 2 kB | 1 GB RAM |
| Speed | 16 MHz | 1.2 GHz |
| GPU | None | Built in |
| Networking | None | Ethernet, Wi-Fi, Bluetooth |
| Price | $20-$22 | $35 |
| USB ports | 1 | 4 |
| Power consumption | Can be < 0.25 W | Several watts |

## 5. IOT components

The Internet of Things (IoT) consists of mainly following components:

### A. Jumper wires

An electrical wire is referred to as a jump wire. Which is usually used to attach the components of a breadboard or other prototype or test circuit, either internally or with other equipment or components, without the use of solder.

Fig. 2: jump wires with solid tips [11]

### B. LEDs

In electronics, a complete light-emitting diode (LED) is a semiconductor device that, when charged with an electric current, emits infrared or visible light. Many electronic devices use visible LEDs as indicators or lamps.

Fig. 3: five colored led lights [12]

### C. Ultrasonic sensor

The HC-SR04 Ultrasonic Sensor is a distance measuring sensor. It emits a 40000 Hz (40kHz) ultrasound that passes through the air and detects any objects or obstacles in its way. It will be redirected to the module. Obstacle-avoidance robots and automation projects frequently use it. Ultrasonic transmitter and receiver modules are included.


Fig. 4: Ultrasonic sensor [13]

### D. Bread Board

A breadboard is a building foundation for electronics prototyping. Originally, the term referred to a polished piece of wood that was used for slicing bread. The solderless bread board became available in the 1970s, and the name "breadboard" is still widely used to refer to these boards.

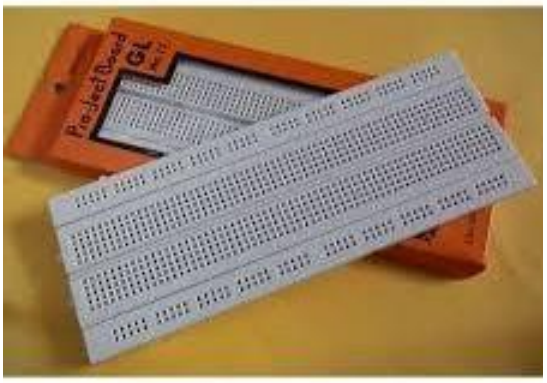

Fig. 5: Bread board [14]

## 6. CONCLUSIONS

Housing program for Android in order to improve crystal clear accountability between society members and management, society management will reduce human efforts and errors. It also aids in the reduction of time and effort spent on manual communication in society by delivering accurate and transparent alerts and important information to society members. The Internet of Things brings a slew of advantages to society. It also provides information on the various components used in automation. This paper demonstrates the power of IoT in terms of its ability to contribute resources for the purpose of developing a large number of applications and assisting in their implementation on a public forum. This form of application saves time and effort for the customer. By this paper, it concludes the usage of android application for society and IOT automation using IOT components.

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