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# Housing Society Management System Using IoT

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**ABSTRACT:** The Internet of Things (IoT) is a revolution in technology where all real world objects will be connected to internet. The Emerging technology is going to give a new dimension to the way we perform our everyday activities. This system introduces the simple implementation of a usable application with the low cost solution. "Simplicity is the ultimate sophistication". Housing society management system exactly follows this phrase and aims at making the current situation in the society simple and efficient. It automates certain attributes that occur within the society and makes it easy for the members of the society.

**KEYWORDS** - Menu, website, IoT.

## I. INTRODUCTION

Generally, in Society all the work is decided in meetings and maintenance bills, contact no of members are recorded on the papers. There is no automated system for doing all the things that generally happens in society, so that members can come to know what is happening in society. The Society Management System allows members to login with their own account and get updated with society happenings. Society Management System is the website portal to reduce conflicts among society members. The system has automated functionality for calculating monthly maintenance bill and member can view their bill status on their account. The main functionality of this project is that, there is a voting system for different society positions like Chairman; Treasurer Etc. Member can vote the candidates that are standing for different roles in society. The system provides a unique interface to every user to interact with the system. System accepts queries from users and evaluates the need of the query and fires it over the database and results are displayed to the user. We have combined our website with IoT. Water pump will start according to the time given and also will automatically switch off the pump. The light in the society will also start when the daylight is low.

## II. LITERATURE SURVEY

- 1) Study of Implementation of Society Management System: This application was developed by Shivganga Gavhane, Rutuja Vatharkar, Swati Sonar, Pratiksha Patil. This was an android application which contained features like Notice Board, Calendar, Contact, Maintenance, Financial Report, Complaint or Suggestion. To overcome the drawbacks of the existing system, the application provided an efficient way. It also had a special feature called "Push Through Notification" which helped in efficient usage of roles to the society members.
- 2) Housing Society Management Web Application with recommendation system: This application was developed by Saurabhi Raut, Priyanka Pawar, Masira Shaikh, Neha Bhat, Prof. P.N. Kalavadekar. This web application helped in improving the sociality of the society by helping them interact with each other by becoming a member of a cultural or sports group. This application also helped the residents to give complaints and

suggestions via the application instead of personally meeting the chairman to give them. Also once the complaint or suggestion is resolved, it is updated in the application. Due to this, the residents are always updated of the current affairs regarding the society matters and they can also participate in various events

- 3) Society Management Application on Android: This application was developed by Rahul Bhagwat, Aashay Bharadwaj, Vivek Harsode, Anurag Chawake, Mrs. Deepali Bhanage. This android application contained features like QR code authentication, Online Payment, Society Maintenance Amount. To surmount the drawbacks of the subsisting system, they provided a more astute and efficient way to handle the critical issues by truncating efforts and advancements in reliable communication. Different functions in the society like Complaints, Notices, Meetings, Rules, Suggestions, Miscellaneous Contacts were available within a single visual perception so that users can visually examine it and make utilization of it whenever is obligatory.
- 4) Housing Society Management: This application was developed by Shantanu Kudale Chandan Amarnani, Harshal Sawakare, Shubhankar Kokate, Sujata Kadu. To overcome the drawbacks of the current system this project provided a simple and efficient way of communication via an android app. This application had a feature which enabled the person to person communication. Different functions within society like Complaints, Notice, Meetings, Rules, Suggestions, Miscellaneous Contacts were available at a glance so that the residents can use any of the features easily. This application also reduced the work of the admin by providing calendar events so that admin did not have to keep track of the information's reachability.

### III. EXISTING SYSTEM

Existing system for a society is based on our traditional way keeping records and details on paper and registers. Access of these details and papers are not granted to common member in absence of the authority. For voting for various designations (secretary, treasurer, chairman, etc) in society members need to be present on site for voting. Due to some unavoidable reasons some members cannot cast vote. Proposed system has a facility for voting online which will provide anytime anywhere access. Booking a hall for celebration in a society was tedious work as details were on paper and were only accessible only to the authority which may create confusion when two or more people want to celebrate in same hall. We studied Housing Society Management System [5]. This software system generates bill automatically and manually. It creates bill of all members at single click. In this system bills can be generated as per multiple of months i.e. monthly, quarterly half yearly etc. due day of bills can be assigned. Housing Society Management System does not allow user to cast vote or manage nominees and does not have a provision for hall allocation. This software concentrates mainly on generation of bills whereas our system integrates various other features of society which are exact replica of the real happenings in the society. Including features like voting, hall allocation, report generation etc. Our system provides more efficient and accurate results and can be accessed anywhere anytime.

### IV. PROPOSED SYSTEM

Society Management System is the website portal designed to reduce conflicts among society members. The system has automated functionality for calculating monthly maintenance and member can view their bill status on their account. The main functionality of this project is that, there is a voting system for different society positions like Secretary, Chairman, Treasurer Etc. Member can vote the candidates that are standing for different roles in society. The Society Management System allows members to login with their own account and get updated with society happenings. Datepicker is a JQuery function that allows user to pick up any date in user friendly manner.

The following are the modules included in this system:

1. Login and Administration
  - Login will separate the user, secretary and Administrator of the System.
  - The monthly maintenance bill will be authenticated by administrator.
  - Admin can also set the candidate for voting and allocation of hall.
  - The administrator and members has authority to login to the website and manage their profile.
  - Secretary has the special privileges of updating monthly bills.

Working of the System

- (1) For a new member he will register on the website by providing the necessary details.
- (2) If already registered, then the user can directly login to the system.
- (3) The system will differentiate as per the login as either
  - a. Administrator
  - b. Secretary
  - c. User
- (4) After login you will be directed to the dashboard of the system where you will have various options as per the type of the user
  - a. The administrator can insert posts, notices, manage the site, manage users looks etc.
  - b. The secretary can access the posts.
  - c. The member can manage his/her profile.
- (5) On visiting the main site, the user will have two options Logout and My Society and all the recent news and activities will be visible to the user.
- (6) On clicking the My Society option, you will be directed to the society's dashboard.
- (7) Here the administrator can select the members for voting for various positions, can check any complaints received and even reply the solution to the sender, check the status of the maintenance bills of each member and set it as paid if a particular member has paid the bill, generate reports and also allot halls to the member if requested.
- (8) The secretary will have the right to update the prices of the maintenance bills if there is a case of rise in the prices due to some reasons, and also reply to the complaints received.
- (9) The member of the society can view the recent posts and notices of the society, he can vote for the candidates which are selected for voting for various positions. He can also send any complaints or queries to the authority and can also search for other members present in the society.

## V. LIST OF HARDWARES

- Window 10, 64bit
- CPU: (Intel i5/i7)
- Hard disk - 1 TB
- Arduino : It is an [open-source hardware](#) and [software](#) company, project and user community that designs and manufactures [single-board microcontrollers](#) and [microcontroller](#) kits for building digital devices. Its hardware products are licensed under a [CC-BY-SA license](#), while software is licensed under the [GNU Lesser General Public License](#) (LGPL) or the [GNU General Public License](#) (GPL),<sup>[1]</sup> permitting the manufacture of Arduino boards and software distribution by anyone. Arduino boards are available commercially from the official website or through authorized distributors.
- Dc 5v water pump: This is Micro Submersible Water Pump DC 3V-5V, can be easily integrate to your water system project. The water pump works using water suction method which drain the water through its inlet and released it through the outlet. You can use the water pump as exhaust system for your aquarium and controlled water flow fountain.
- Relay board: Relay boards are computer boards with an array of relays and switches. They have input and output terminals and are designed to control the voltage supply. Relay boards provide independently programmable, real-time control for each of several onboard relay channels.
- Jumper wire: Jumper wires are used to connect two points in a circuit. All Electronics stocks jumper wire in a variety of lengths and assortments. Frequently used with breadboards and other prototyping tools in order to make it easy to change a circuit as needed.
- Ldr sensor: Photo resistors, also known as light dependent resistors (LDR), are light sensitive devices most often used to indicate the presence or absence of light, or to measure the light intensity. LDRs have a sensitivity that varies with the wavelength of the light applied and are nonlinear devices.
- Node mcu: NodeMCU is an open source firmware for which open source prototyping board designs are available. The name "NodeMCU" combines "node" and "MCU" (micro-controller unit).

- Ultrasonic sensor: An ultrasonic sensor is an electronic device that measures the distance of a target object by emitting ultrasonic sound waves, and converts the reflected sound into an electrical signal. Ultrasonic waves travel faster than the speed of audible sound (i.e. the sound that humans can hear).
- Breadboard: A breadboard is a solderless device for temporary prototype with electronics and test circuit designs. Most electronic components in electronic circuits can be interconnected by inserting their leads or terminals into the holes and then making connections through wires where appropriate.
- Resistor: A resistor is a passive two-terminal electrical component that implements electrical resistance as a circuit element. In electronic circuits, resistors are used to reduce current flow, adjust signal levels, to divide voltages, bias active elements, and terminate transmission lines, among other uses.

## VI. EXPERIMENTAL RESULTS

### Home Page:

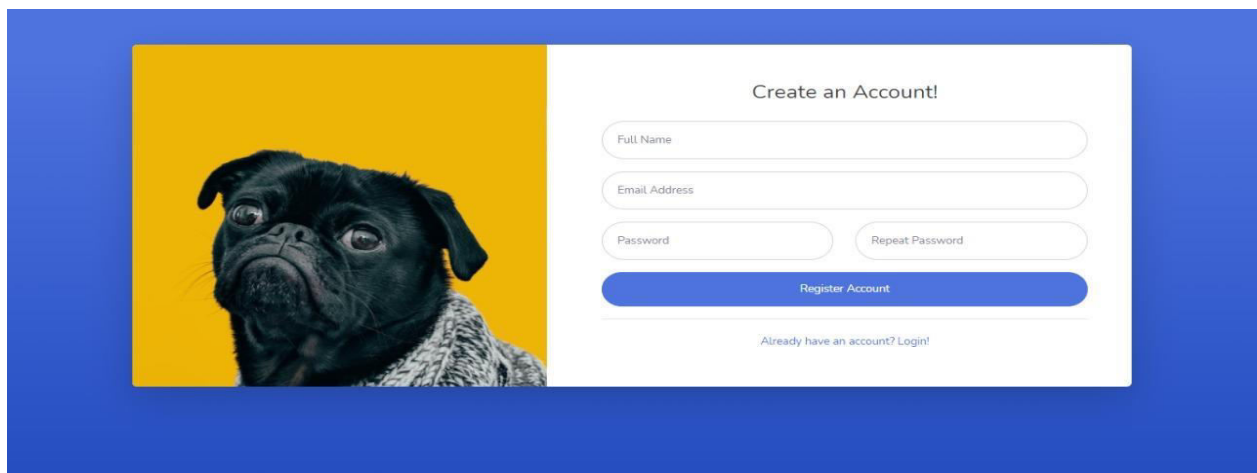


Fig1: Home Page

### Login Page

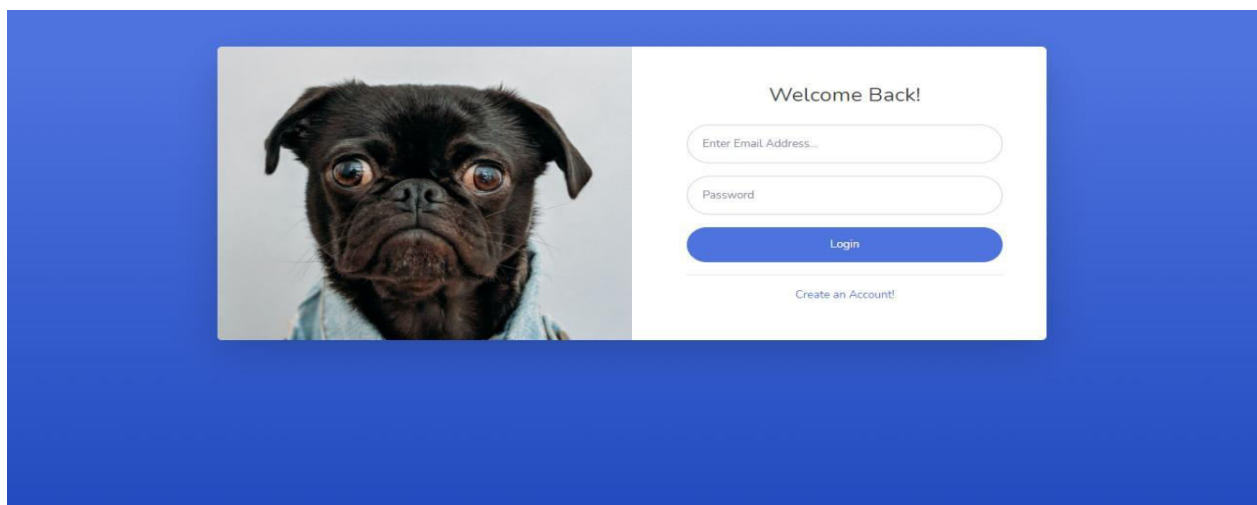


Fig2: Login Page



### Admin dashboard

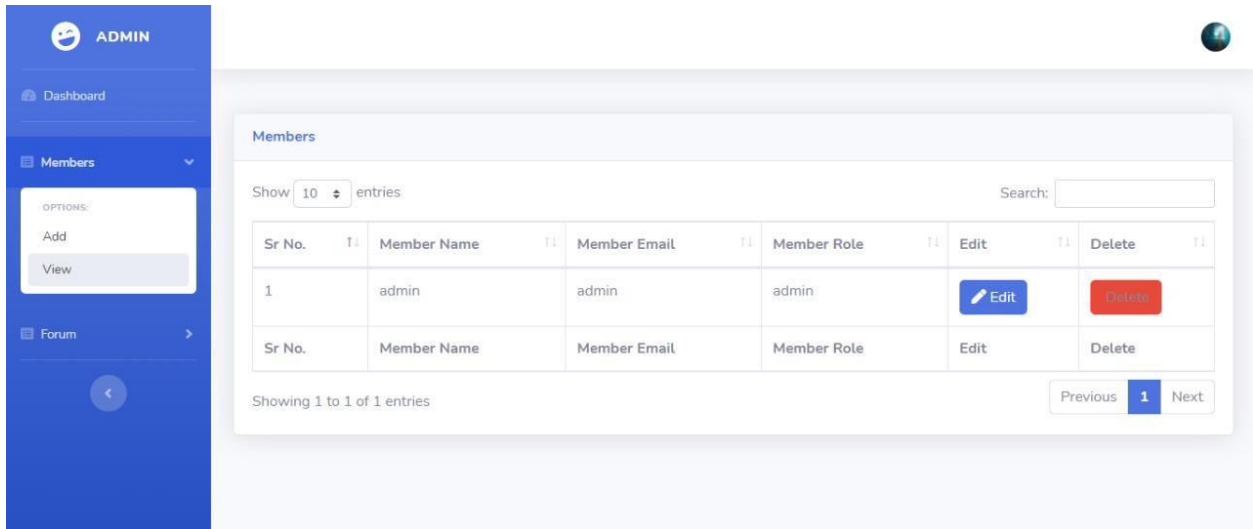


Fig3: Admin Dashboard

### Add member

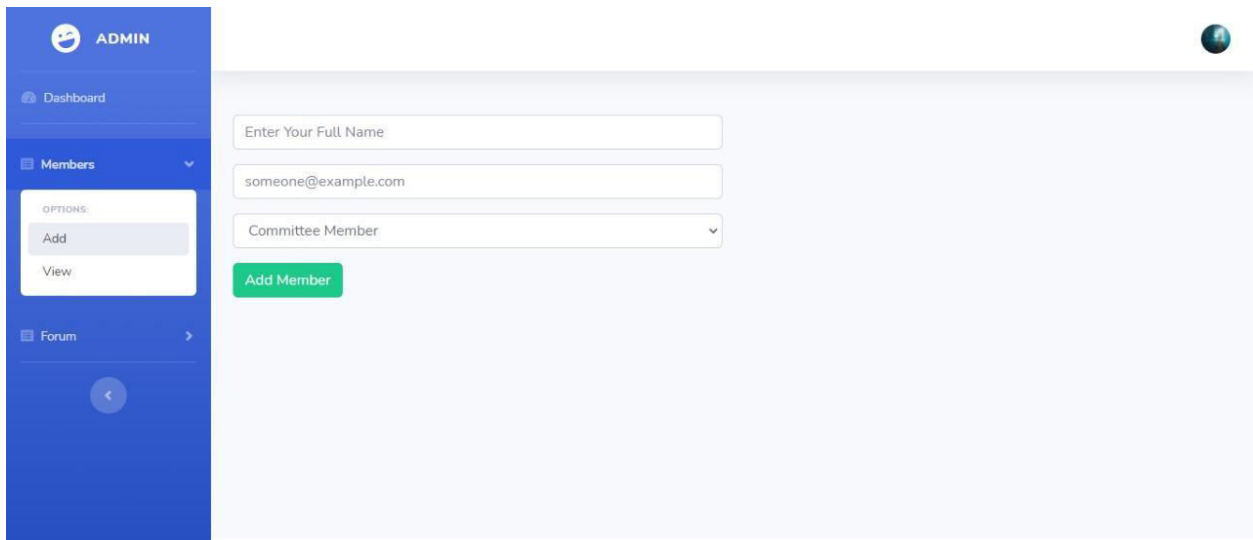


Fig4: Adding a Member

### IoT based automatic street light

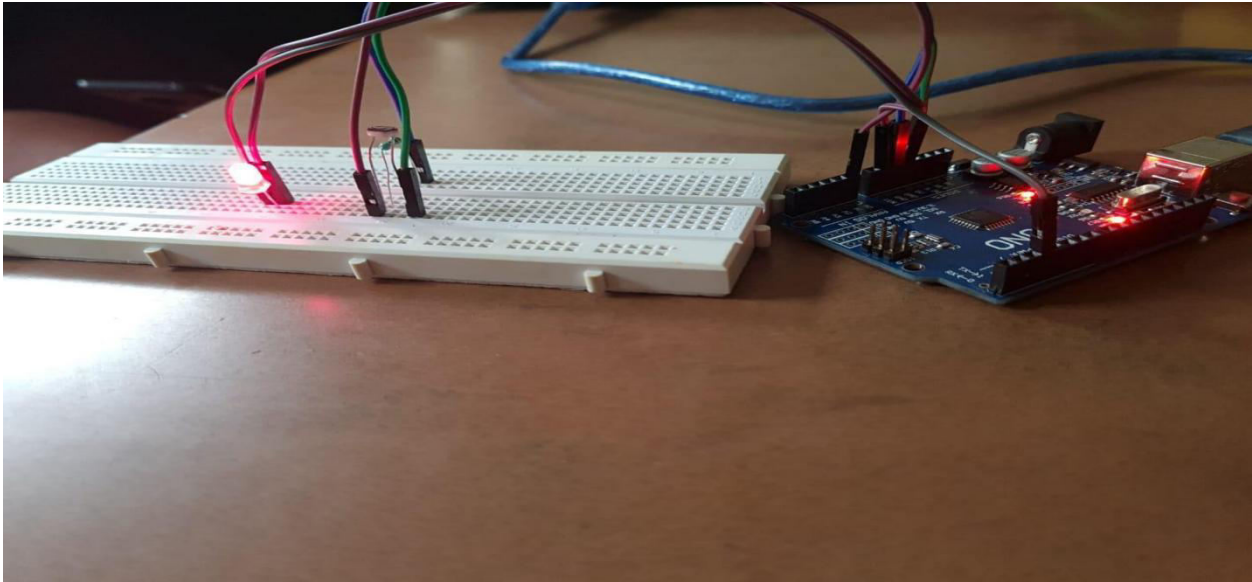


Fig5:IoT based automatic street light

## VII. CONCLUSION

Thus, our website tries to comfort its users with easily understandable as well as essential functionalities. Here, both managing committee and residents have the same website with the maintenance generation and financial report generation features disabled at the resident side. This is achieved by maintaining separate login type for both types of users. Both types of users have similar rights over remaining features like viewing and posting notices on the notice board, adding and getting notified by calendar events and accessing society member contacts and the miscellaneous contacts. Our application is implemented to help manage the affairs of a housing society by requiring the committee member to enter and save minimal amount of information. It will allow the members of the housing society to access information about a society, its residents and the managing committee on the go. Thus, this website provides a virtual tour of the society. Concept of data mining and artificial intelligence would be worked upon as a future work for our project. Our project is also imbedded with IoT based automatic street light and automatic water pump.

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