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# A Smart Automated Meeting Room Solution Management System

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**ABSTRACT:** In every organization there is always a need of meeting and conference rooms, to conduct various events and significant discussions. It is found that generally there are limited number of conference hall/meeting rooms in most of the organizations, whether it is an educational institution or any organization of small scale. Many different departments have to share this among themselves for conducting events and hosting important meetings with the clients based on the need and demand. This leads to increase in waiting time which is not acceptable by the clients. The possibility is also high in cases where the same meeting room is required by two or more departments on the same day and on the same time slot. The clash in timing will be known to the departments only when the day of the event has reached, by that time it will be too late and very little time left for alternate arrangement. Hence an efficient and user-friendly system is required to reserve the hall beforehand and make the information available to others to check the status of the hall before booking. In this paper solution to this problem is provided in the form of a smart and automated web interface. The interface developed handles meeting room solution management efficiently, in terms of systematic process involved. A web application is developed and deployed to not only allow people book rooms for their meetings and conferences, but also can be used to ensure the booking of meeting room utilization based on predefined rules and policies. Additionally the system also takes care of handling and managing adhoc meetings by providing real-time availability of meeting rooms to users.

**KEYWORDS:** Booking System, Database, Event Management, Scheduling, Smart-Meeting Room

## I. INTRODUCTION

Meetings are essential events in most organizations where people can merely disseminate knowledge, information, thoughts or just discuss for implementing crucial decisions. To facilitate these activities, need of meeting and conference rooms, is essential as the discussion might be sensitive and confidential based on the meeting context. It is found that there is one conference hall in every organization, whether it is an educational institution or any company. Many different departments have to share this single conference hall for conducting its event. Hence there is always a possibility of the hall being booked by two or more departments on the same day. The clash in timing will be known to the departments only when the day of the event has reached, by that time it will be too late and very little time left for alternate arrangement. Hence an efficient and user-friendly system is required to reserve the hall beforehand and make the information available to others to check the status of the hall before booking. Thus, we have developed few different smart meeting room solutions

- Meeting room solution using calendar
- Meeting room solution using clock
- Meeting room solution for Administrative-interface
- Meeting room solution for Employee-interface

## II. LITERATURE SURVEY

In the paper presented in IEEE in 2016 by LinhDuc Tran, Alex Stojcevski and Thanh Chi Pham, they have mentioned about an automated hall booking system in which they have proposed use of PIR sensors to determine presence of people and intimating. In most meeting room scheduling or management system, the availability of meeting room is mainly based on pre-determined schedules. However, since the meeting duration is not always exact [3] as it is

scheduled, there are some situations that a meeting room is underutilized. Therefore, in this paper, we present a smart meeting room scheduling where people can schedule meeting easily and admin can edit/delete the meeting which is going to happen. On this server, a web application is developed and hosted to allow people book rooms for their meetings. People can easily book meeting rooms and schedule meeting using calendar and clock. In the modification section Admin can edit/delete the meeting which is going to happen. In the Add Room section he can able to add Room for meeting with all requirements and he can also modify the room through Modify room entity. Most related work is presented in [6]. However, this system has many shortfalls: to name a few - Detection of occupancy is carried out using more than one sensor component, the entire set-up is not cost-effective, notifications are not sent based on the meeting-room occupancy.

### III. EXISTING SYSTEM

In previous existing system person has to book a meeting room manually. He/she will have to wait for the meeting room and book. If suppose a meeting hall is booked then that person have to check for the other room to schedule the meeting. In some exceptional cases if a room is available but the room capacity is not sufficient then it's completely waste of time. So as to overcome this problem many websites are developed.

### IV. PROPOSED SYSTEM

To overcome the problems faced by the users we have developed this smart meeting solutions by using different tools and techniques. Our system is a user-friendly interface which saves the time and money of the users to have a meeting in a convenient way. We can pre-book or reserve room. Suppose if a user doesn't know which room is already booked/reserved he can always check the calendar or a clock which we have used in our system which ensures to always show which room is booked. Then he can eventually book another slot without a doubt. Now coming to exceptional scenarios suppose a meeting which was for 2 hrs extends a bit and just after that there is other meeting then at that time the first group will be given some empty room and the next team will occupy the allocated room. All these features save the time of the user.

#### 1. Meeting room solution using calendar

We have developed an interactive system starting with login page with a validation. Employee can login using his id password and can book the time and date of meeting and once booked they will get a meeting id which should be entered in the door lock then only, they can enter. All these meeting details will be displayed on the page. The special feature of this is to add a calendar which would show all the time for which meeting room was booked. And also, the duration of the meeting is displayed in the calendar. Which makes easy for other users to book the next slot according to the previously booked meeting. We also included a feedback system which would represent the condition of the meeting room. This a simple and a smart solution and cost effective.

#### 2. Meeting room solution using a clock

In this we have developed a meeting room system in such a manner that whenever a meeting to be booked, a clock is used check which meeting room is already booked/reserved. This feature makes it easy for the user to know and save the time without wasting their time on searching for the rooms to schedule a meeting.

#### 3. Meeting room solution for Administrative-interface

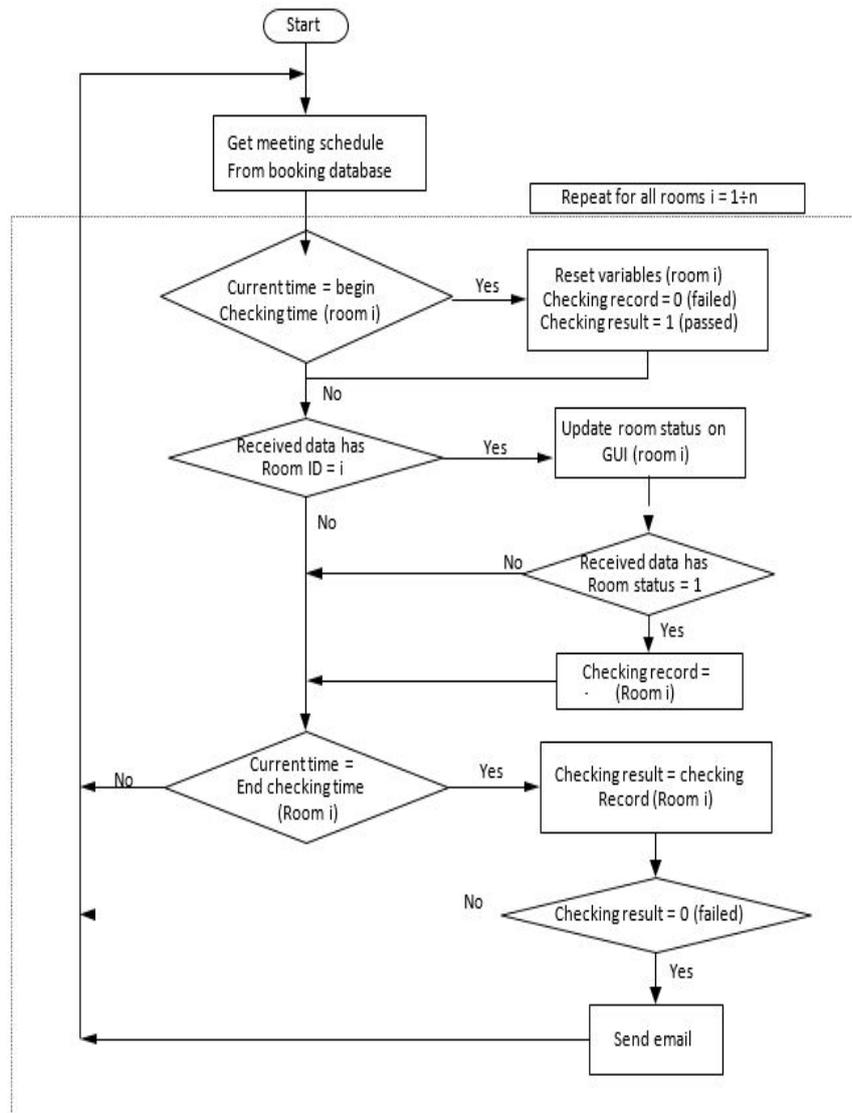
This is developed for the administrative end and only admin is granted the access. The main functionalities of the admin panel are as soon as admin enters his login credentials, he can see the admin home page. In the add employees' section he can able to add employees who have meetings including his details. The admin can also edit, delete or reschedule the meeting which is going to happen. This can be done in modification section. In the add room section he can able to add room for the meeting with all the requirements and he can also modify the room through modify room entity.

#### 4. Meeting room solution for Employee-interface

We have developed an interacting employee interface starting with login page with a validation. After the successful login, in the home screen there are some common fields related about booking of meeting rooms which are currently available and other fields like change password to change his/her respective password. And the same details can be modified later if the user/employee needed. This offers employees to book a meeting room, change scheduler and planning tool. This mainly focus on the pre-booking or reservation of the meeting room with all the basic requirements.



Database Field	Description
RNO	<ul style="list-style-type: none"> <li>• Number of the booking room or name of the room.</li> <li>• Format: VARCHAR (maximum 45 characters)</li> <li>• Example: 1.3.45 or Yarrow</li> </ul>
RBOKR	<ul style="list-style-type: none"> <li>• Name or ID of booker</li> <li>• Format : VARCHAR (maximum 45 characters)</li> <li>• Example: John Smith or s3369856</li> </ul>
STRTIME	<ul style="list-style-type: none"> <li>• Start time the booking session</li> <li>• Format: TIME (hour:minute:second)</li> <li>• Example: 14:30:00</li> </ul>
ENDYIME	<ul style="list-style-type: none"> <li>• End time of the booking session</li> <li>• Format: TIME (hour:minute:second)</li> <li>• Example: 16:30:00</li> </ul>





### V. DESIGN

Data structure design contains 3 modules as admin Module, user module and Communication Module.

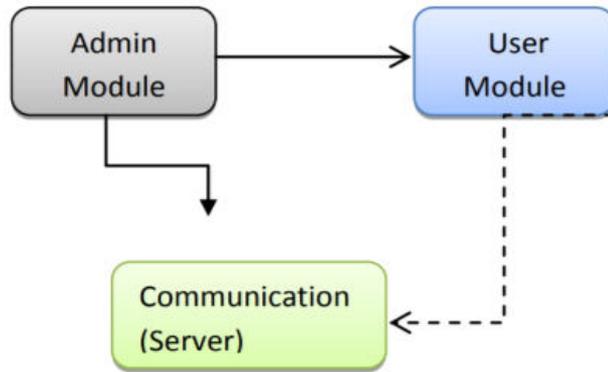


Figure 1: System Architecture

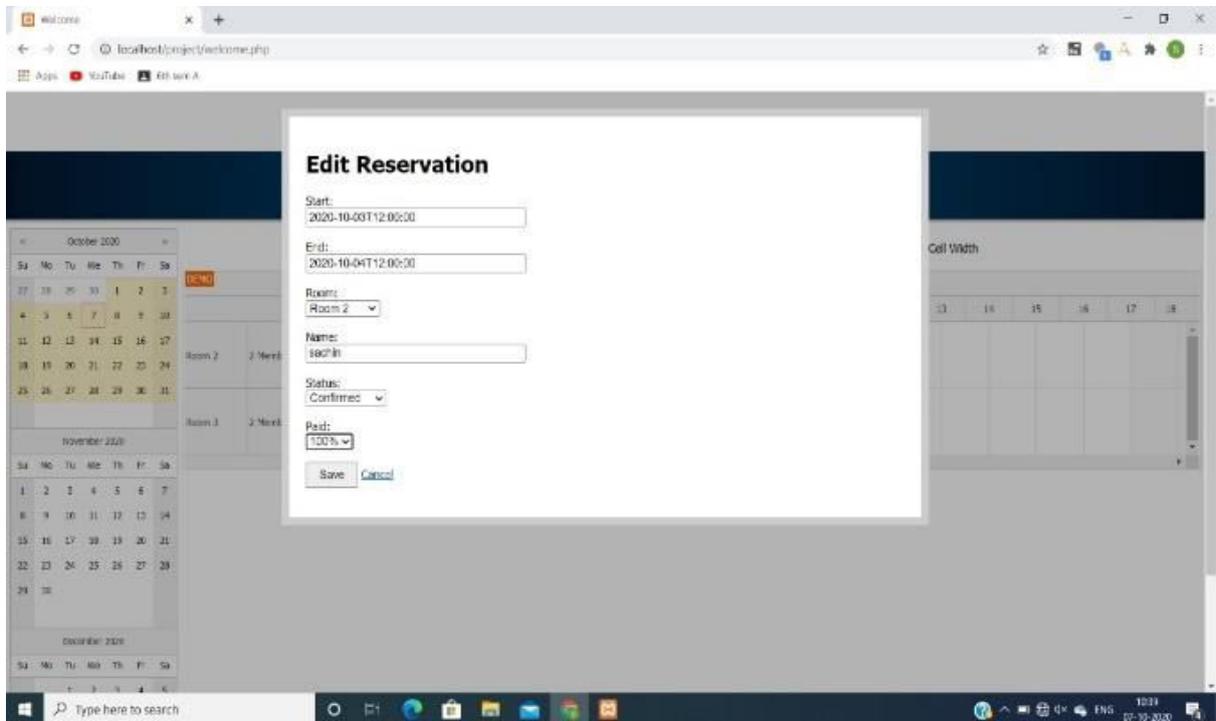
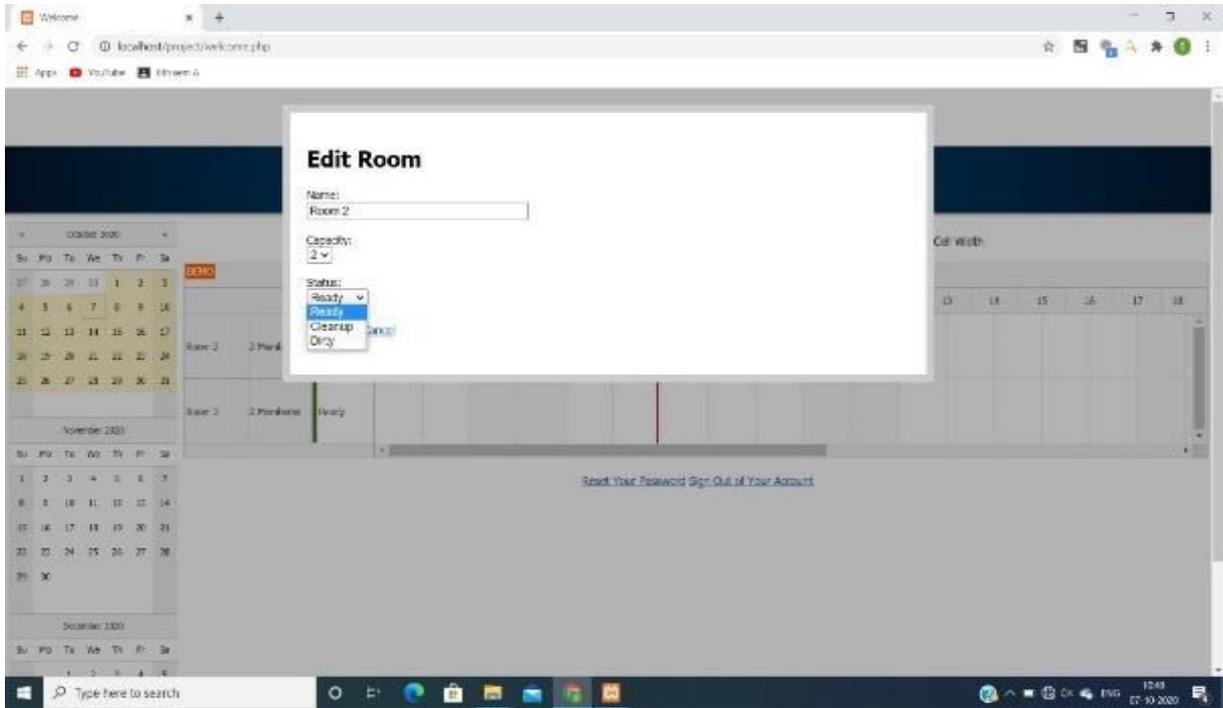
#### 1. Admin Module

This module will be used by the admin for creating all available rooms and adding the department in the database. In the modification section Admin can edit/delete the meeting which is going to happen. In the Add Room section he can able to add Room for meeting with all requirements and he can also modify the room through Modify room entity.

#### 2. User Module

This module will provide user interface to the user to login and book hall for entries. In this module user can also see their reservation status. User can schedule meeting using calendar and clock. User also can edit the reservation.





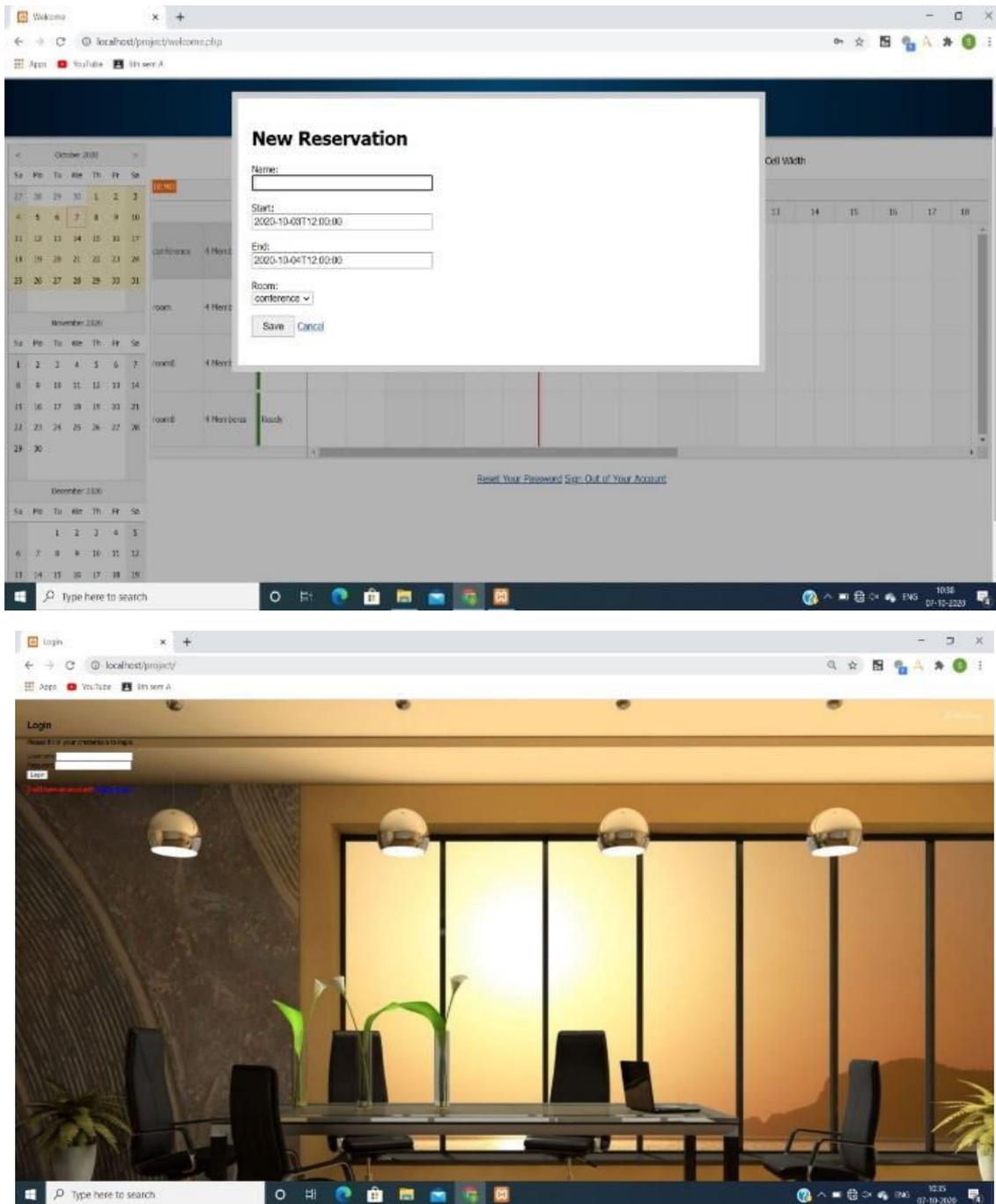


Figure 2: Screenshots of the Interface

### 3. Communication Module:

This module will be used by the web portal to communicate with the central database. The server is used to update the new entries and communicate with the user. Hence the database itself would be called as communication module.

- Store the Information regarding departments in the database.
- Serve the communication module with latest database status, whenever requested by web portal.
- HTML5, CSS, PHP, JavaScript as a frontend language.
- PHP and MySQL as a backend language (XAMP server).



The proposal solution is Three Tier architecture that contains user, server and database. The user interface is used to book seat, the server check for conflict, reserve the seats and database is used to store the reservation details and generate reports. It is cost effective project, easy to maintain and developed using open-source software. The solution is very transparent and easy to use. It is helpful in reservation of conference room seats for auditors. The project is very helpful, transparent and conflict free reservation.

## VI. IMPLEMENTATION

Conferences are indispensable events in every organization where people can simply share knowledge and information or discuss for important decisions. To facilitate these activities we propose Web portal, "Meeting Room Booking" XAMPP SERVER. An efficient and user-friendly system is required to reserve the hall beforehand and make the information available to others to check the status of the hall before booking. The system architecture has been divided into following 2 modules:

- 1) Admin module
- 2) User module

### 1. Admin module

The module provides following function, such as it allows the admin to login to the system by using login-ID and password which is been initially provided by developer. After login to the system admin can add user and can view or update the user, by selecting update admin can delete user or can alter information related to user. Admin can add buildings which are providing a hall for conference and can view or update building, by selecting update admin can delete building or can update information related to building such as name, address etc. And even admin can stop booking of particular building in case if building temporarily not made available to user due to some internal works. Admin can add hall in a building and can view or update hall information. Admin can also see the booked hall and details of the one who booked hall.

### 2. User module

In user module user can view hall images with detail information of hall. They can book hall by login or by registering themselves if they are new user on entering the valid information registration will be successful. After login by entering login-ID and password user will receive OTP (One Time Password) on their email-ID to continue further. Hall will book on daily basis. User also can give feedback at the end of the meeting.

## VII. RESULTS & DISCUSSION

The proposed web interface, provides an efficient solution when compared with the conventional way of managing the meeting rooms in large enterprises or organizations. The interface developed is smart and completely automated to handle the different events which generally occur starting from making reservation to convene the meeting without any hurdles. The solution provided is very efficient & effective when compared to the traditional way of hosting meeting. The solution can be used not only by organizations but also by school & educational institutions.

## VIII. FUTURE SCOPE

In future, certain changes can be incorporated as per the requirements of the organizations implementing the system. Those are: - Search of free conference rooms whether they are available in particular city. The system can provide the users with the facility of booking more than one hall at the same time and by using his/her same user-id. The registered users can get the notification of newly built conference rooms in particular areas.

## IX. CONCLUSION

In this paper, the conference room booking system allows people to book the conference rooms across multiple departments or other resources. This includes shared calendar management, unlimited users, remote device management etc. Booking is done on the basis of time or period. It is flexible for repeating booking and this system supports multiple languages. The system is easy for implementation and maintenance. It is cost effective project and can be used in many organizations. This project allows people to book various types of room based on their requirements.

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