**PROJECT REPORT ON**

**CHATROOM**

**ACKNOWLEDGEMENT**

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**INTRODUCTION**

**Aim**

The aim of this project is to build a functional real-time messaging application for users by using modern web technologies.

Chatting is a method of using technology to bring people and ideas together despite of geographical barriers . The technology has been available for years but the acceptance was quite recent. Our project is an example of chat server, it is made of two applications the client application ,which runs on the user’s Pc and server application,which runs on any Pc on the network. To start chatting client should get connected to server.

**SYSTEM ANALYSIS**

**SYSTEM OBJECTIVES**

Communication over a network is one field where this tool find wide range of application. Chat application establishes a connection between 2 or more systems connected over an internet.In addition it converts the complex concept of sockets to user friendly environment. This software can have further potentials , such as file transfer , video call and voice chatting options that can be worked upon later.

**OPERATIONAL CONCEPTS AND SCENARIOS**

CHAT FORM:

* + - * Rich Textbox: Which cannot be edited but only displays the messages from one user to another
      * Textbox: Contain messages to be written that is sent across the network
      * Send Button: The in the textbox is encoded and sent as a packet over the network to the client machine. Here the message is decoded and shown in the Rich Textbox.

**Technologies**

* [NodeJS](https://nodejs.org/) - JavaScript backend/server-side solution of choice
* Html- Hypertext Markup Language for documents designed to be displayed in a web browser.
* Css- Cascading Style Sheets used for describing the presentation of a document written in a markup language like HTML.
* [Express](https://expressjs.com/) - Node framework that makes handling http requests with ease.
* [MongoDB](https://www.mongodb.com/) - data storage solution that just speaks JSON and pairs very well with Node.
* [Socket.io](https://socket.io/) - web sockets implementation, fast and reliable real-time communication engine
* [Angular](https://angular.io/) - rich frontend web framework, helps creating fast, reliable web applications
  + [Angular-CLI](https://cli.angular.io/) - command line interface for streamlined angular development
  + [TypeScript](https://www.typescriptlang.org/) - superset of JavaScript that can be compiler-checked, also has types!
  + [Bootstrap](http://getbootstrap.com/) - CSS/JS framework, makes it easy to develop responsive, well polished web apps

# How it works

On the client-side users can create accounts that will be stored in the database. Then users can authenticate with the given credentials, if those are correct then the user is redirected to the chatwindow.

Once authenticated, the server creates a socket bidirectional connection with the client to facilitate the chat functionality.

In this chat application users can send friend requests to each other for further communication

Every time a user sends a message, this goes to the server which redirects it to the desired respondent. Also every time a user enters or leaves chat, the server announces all the connected clients.

**CONCLUSION**

There is always a room for improvements in any software package,however good and efficient it may be done.But the most important thing should be flexible to accept further modifications. Right now we are just dealing with text communication. In future this software may be extended to include features such as-

* **FILE TRANSFER**: This will enable the user to send files of different formats to other via the chat application.
* **VOICE CHAT**: This will enhance the application to higher level where communication will be possible via voice calling as in telephone.
* **VIDEO CALL-** Communication will be possible via video calling