



Securing Uninterceptible Connection for Chatting and File Sharing System

¹Ojo, Abosede Ibironke, ²Eniola, Sarah Anuoluwapo and ³Adejola, Aanu Adeyinka

^{1&2}Department of Computer Science,
Ogun State Institute of Technology, Igbesa, Ogun State.

³Department of Computer Science,
Federal Polytechnic Ede, Ede Osun State
Corresponding author email: ronkujoye@yahoo.co.uk or ronkujoye@gmail.com
08164627444 or 08027609915

Abstract: Chat System is a form of communication that utilizes computer programs that allow users to connect to a chat server using a chat client and meet in a chat room. It is one of the commonest communication method use in this modern day to disseminate and transfer messages, information, video, audio and music over a network that can either be limited in range or over a different network (internet). The internal chat is developed to enhance secure communication that will protect vital information within an organisation with the idea of using peer-to-peer architecture where users in the same chat room can transmit information with one another by typing messages into a window where other users in the chat room can see the message. The user can also see all of the messages entered by the other users. Conversations are then carried on by reading the messages entered by the other users in the chat room and responding to them. This system is designed and implemented using PHP, HTML and Java Script, some of the implemented displayed screens were included and finally, the designed chat and file transfer system featured proposed chat design, system architectures and chat emoji during implementation.

Keywords: Chat, File Transfer, P2P, Network, System, Internet, Online, message and Communication

INTRODUCTION

According to Mutaab, Jalil and Suad (2014) online Chat is a modern technique of using technology to bring people and ideas together irrespective of their geographical location. It refers to any communication made over the internet that offers a real-time transmission of text messages from sender to receiver which is convenient and comfortable method of conversation with less costly services (Khan, n.d). The message is mostly short in order to enable other members to respond quickly. File sharing is the process of transferring or providing access to stored information which ranges from audio, images, video, documents etc. which may be between a limited area and even a wide area depending on the organisation or the firm.

Chat method comes in form of peer-to-peer system where the users exchange text messages and files over the same network. This user is defined as client which is someone that wants to gain access to a particular information on a server. There must be interaction between the client and the server. Chat system is a distributed system with chat server and chat client (Periasamy, 2010). Chat client supports for all communication including requesting chat server location information from a location server and display received chat messages. Chat server will conduct chat session and manage all chat clients.

Chat System is a form of communication that utilizes computer programs that allows for two-way conversations between users in real-time where the users will connect to a chat server using a chat client and meet in a chat room. Once the users are in the same chat room, they can send and receive message by typing messages into a window where all other users in the chat room can see the message. The user can also see all messages entered by the other users. Discussions take place by reading the messages entered by the other users in the chat room and responding to them.

A chat system could be intranet where chatting is on same network within a limited range area while internet based chatting is a chat over a different network that is popularly called online chatting. Both forms of chatting can be used to share messages or information, make inquiry and others.

Due to the need of ensuring confidentiality of communication and to lower the penetrability of an Organizational information, there should be proper keeping of chat messages in an organisation. The ability to secure chat with other users or participants in an organization is of great advantage to the company against competitors who lack

such system. When a Chat is secured, this will enhance communication between many users within an organization and limit the attack or risk of interference by or involvement of any unauthorized user

STATEMENT OF THE PROBLEM

The process of transmitting sensitive and vital information in an organisation through the internet poses a very big risk to the organisation because invader or any unauthorised user can easily access the information, the problem of insecure transmission of information, the reliance and dependability of an external server to transmit information when the system is not on a local network may put the communication or transmission of information on hold till the time they restore their server, the difficulty in asking questions easily without moving from desk to desk etc. are some of the reason while intranet chat and file sharing transfer are required.

AIM AND OBJECTIVES OF THE STUDY

The aim of this paper is to enable an intranet chatting service with a comfortable file sharing system within an organisation with the following objectives.

1. To enable all staff on the same network
2. To enable each user to share their thoughts and views
3. To provide discussion board for member of staff
4. To provide secure transmission of documents and information as the system will be on a local network
5. To create room for team or group work.

LITERATURE REVIEW

Online communication has drawn attention in recent years with the introduction of different social networking platforms. The use of telephone connection is gradually leaving for the chat technology that enables people to communicate with each other by sending mails, video, audio etc. (Sonawane and Motwani, 2014). Chat is a modern and faster way of communication, is a technology that supports man-to-man communication. It glues people together in any place, at any time and in anywhere. So many social platforms have provided an application services with chat facilities, they include; WhatsApp, Facebook messenger, yahoo IM, emails etc. (Veethia and Periasamy, 2010)

Chatting is an exchange of typed-in message that requires a repository and a different people can take part from anywhere in the world via the internet (Lambture and Shaikh, 2016). The existing method of chatting system are with lots of setbacks with limited offers for privacy and confidentiality that are usually resulted into loss of organizational charts and messages.

There is the need to ensure confidentiality of communication to breed honest and organizations should also keep possession of their chat messages. The capability of a securing chat with a colleague in an organization is to a great advantage of any organisation against competitors who do not have such facility. A Secure Chat System is a system which enhances communication between two or more people within an organization in a way that seriously attempts to be freed from risk of interception by or involvement of unauthorized persons (Sreehitha, 2017).

CHATTING SYSTEM APPLICATION

Chatting system is a two-way communication that is used for the purpose of transferring text messages and files between the users of the system (Veethia and Periasamy, 2010). Chatting system is a distributed programming which consist two components, chat server and chat client. Chat client supports for all communication including requesting chat server location information from a location server and display the received chat messages. Chat server will conduct chat session and manage all the chat clients. Chat client starts the chat session by requesting the communication server name and port number before using either the control message or the chat message. The control message is usually used to create chat room, join chat room, leave chat session and switch to chat room while, the chat message supports only public chat message (Veethia, 2010).

The two major protocols used for chat system are Transport Control Protocol (TCP) and User Datagram Protocol (UDP). TCP takes place for control message while UDP takes place for chat messaging where they both manage the communication of multiple applications (Mutaab et al., 2014).

ONLINE FILE SHARING SYSTEM

Online File Sharing is a technique of sharing files among several or different users across the globe. Common forms of file sharing are File Transfer Protocol (FTP) model and Peer-to-Peer file sharing network. It is also common that a user uploads files to a website and allow other users to download them from the website. Another important issue to consider is the location where the website stores the uploaded files. Two places where one can store the uploaded files are Database and Server (Mahajan 2016).

PEER TO PEER (P2P)

Peer-to-Peer network (P2P) is a type of network in which each workstation has equivalent capabilities and responsibilities. The development started around 1990 due to the need of file sharing. P2P file sharing network is usually used for sharing content files containing audio, video, data or anything in digital format and real time data. One of the famous peer-to-peer file distribution client application is Bit Torrent. P2P is best known for sharing files online and is more popular than the others methods available (Yang and Garcia-Molina, 2003). This replaces the traditional client-server architecture where there is decentralisation model for each system known as peer to function as a client with its own layer of server functionality (Mutaab et al., 2014).

FILE TRANSFER PROTOCOL (FTP)

The **File Transfer Protocol (FTP)** is a standard network protocol used for the transmission of computer files between a client and server on a computer network. FTP is built on a client-server prototypical architecture using separate control and data connections between the client and the server. FTP users may validate themselves by typing the username and password, but can connect anonymously if the server is configured to allow it.

File Transfer Protocol enables users to transfer files between computers. This is made possible due to the two connections offers by FTP where there is one connection for the commands and replies and the other connection for the data transfers. FTP is interactive with commands such as *send*, *get*, *transfer*, *cd* etc. (change directory). It also disseminates files in three modes which are known as stream, block and compressed. The stream mode allows information to be handled as a string of bytes without restrictions. The block mode decomposes the information into blocks of data and the compress mode uses the Lempel-Ziv algorithm to compress data (Rajni, 2019).

TYPES OF CHATTING SYSTEM

The most commonly types of chatting system are;

Live chat

1. Live chat method allows customers to communicate with customer service representatives in real time, rather than speaking with a representative on the phone. It makes visitors on a website to have a live interaction with agents in a chat box within a browser. This form of communication provides another option for customers to reach customer service support without speaking directly on the phone. This allows users to send a message in a chat box and then wait for a representative to respond to them instead of waiting for an email response.

There is misnomer in live chat due to the wait time, this wait time can be annoying to customers who expect to be chatting with an agent instantly due to its name. Most live chat windows are not suitable for mobile devices except laptops and this may be inconvenient for many users since most people nowadays use their phones often but, there is need for computer if there will be smooth and unbroken live chat communication. Also, Visitors to the website need to stay in the chat box to communicate with a customer service representative since the conversation will be deleted if the chat box is closed. This issue can be inconvenient to a visitors and couple with the instability in the internet connection that will make customers to contact customer service support multiple times with relaying issues to different agents.

In-App Messaging

1. In-app messaging is a modernized method of live chat where customers enjoy an asynchronous form of communication by sending a message and then exit the app without deleting the conversation. A push messages could as well received when an agent has responded to their inquiries. These notifications can provide relief to visitors because they are instantaneously alerted when their queries have been addressed. There are facilities or services such as screenshots, links, and others that can be shared when using in-app messaging. When customers are having difficulty explaining their issue, they simply take a screenshot of the displayed issue and send it to the agent. This procedure makes the experience easier for customer service representatives and customers because both will have a visual reference for clarification on issues and reach a solution that is much faster. It also assist the agent with the provision of customers' history which will reduce the introduction that may require

to be made by customer anytime they need assistance. This also speeds up the process of receiving help by the customer due to the customer's information that the agents are mindful of. Since most customers do not want to repeat conversations, this feature makes the experience quicker and smoother.

Chat Bot

This is an artificial intelligence (AI) program that simulates a conversation with a user in natural language through messaging applications, mobile apps or even the telephone. A chat bot is one of the innovative and promising expressions of communication between humans and machines. A chat bot represents the emergence of a question answering system leveraging Natural Language Processing (NLP) by formulating responses to questions in natural that is used by various enterprises' end-use applications.

Returning the response: once the user's intent has been identified, the chat bot must provide the most appropriate response for the user's request. The answer may be:

2. A generic and predefined text
3. A text retrieved from a knowledge base that contains different answers
4. A contextualized piece of information based on data the user has provided
5. A data stored in enterprise systems
6. The result of an action that the chat bot performed by interacting with one or more backend application
7. A disambiguating question that helps the chat bot to correctly understand the user's request

METHODOLOGY

In this paper, the following attributes are things provided by the proposed system which will totally eradicate the existing system

1. Secure file transfer
2. Secure communication since system will work on intranet
3. Creation of group chat

SYSTEM FLOWCHART

A flowchart is a graphical representation of an action, it shows the sequential steps or order of an action and it is widely used in presenting the flow of algorithms, workflow or processes. It uses symbols such as circle for the start and end of the process; rectangle for input or output process and the diamond shape as a decision symbol with a connecting arrows

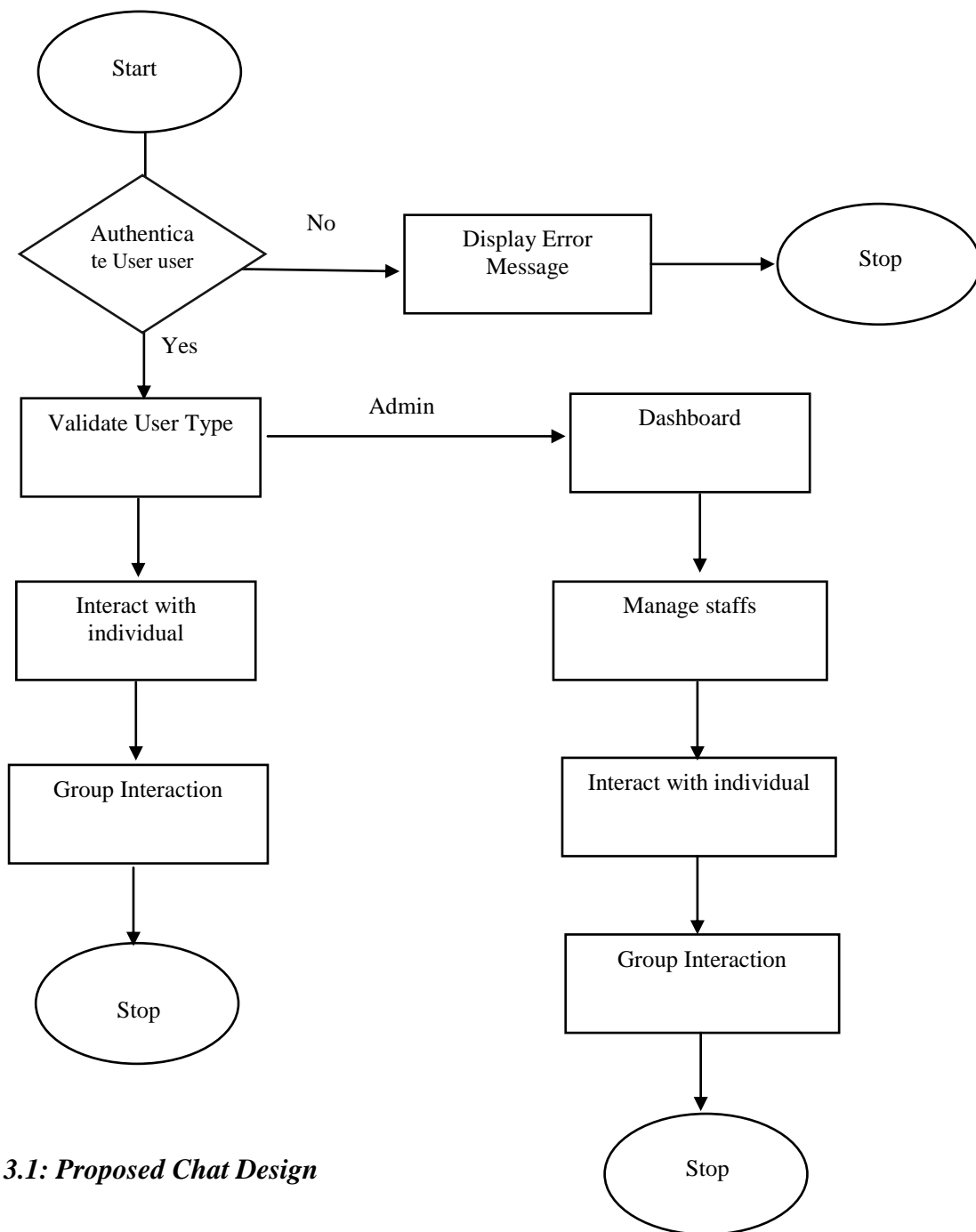


Fig 3.1: Proposed Chat Design

SYSTEM ARCHITECTURE

Chat system is peer-to-peer where the users exchange text messages and files. The peer-to-peer architecture is a distributed programming which consists of two components, the server and the client. The client initiates the communication by requesting from the server location information and display the received chat messages. The server conducts the chat session and manages all the client. The client starts the session by requesting for two parameters, the server name and the port number. The client and the server have two type of communication between them. Firstly, control message where one can join and leave chat session, create a chat room. Secondly, chat message where one can send and receive messages, transfer files from or to their contacts.

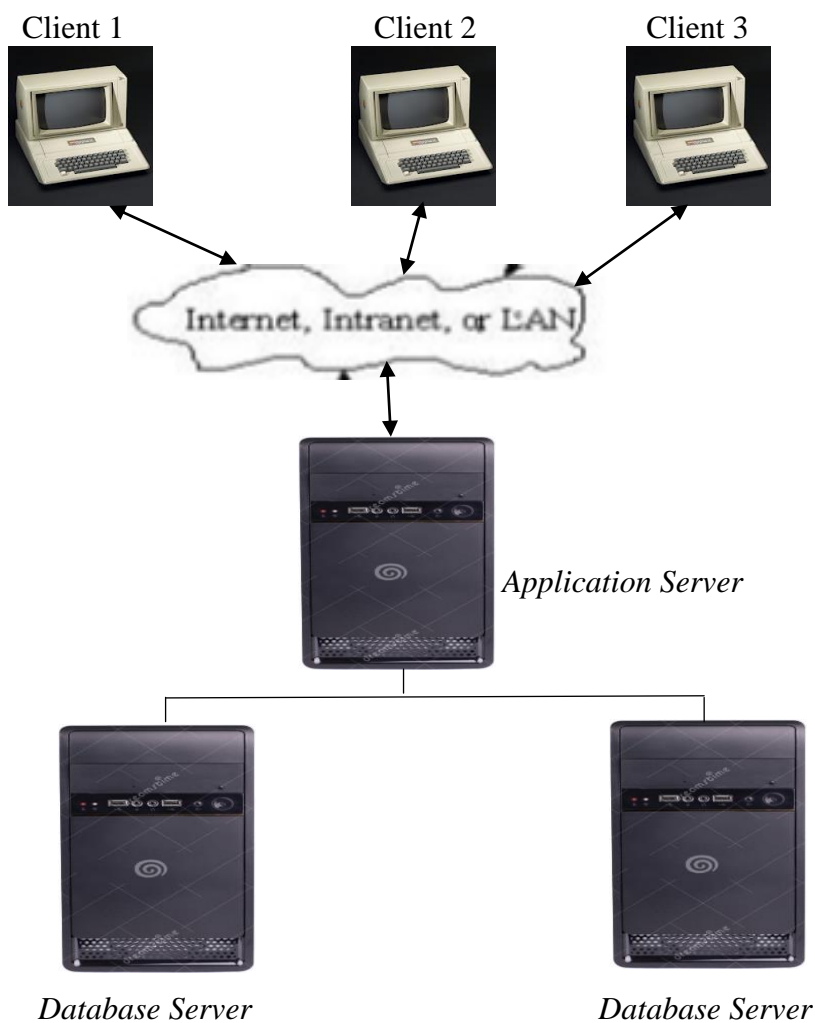


Fig 3.2: Proposed System Architecture

RESULT

Login: This enable an authenticated user or member of staff to gain access to the system. Only a valid staff is permitted to use the facilities provided by the intranet system. Any unauthorised individual member of staff is denied if he/she is not authenticated. The below screenshot depict the login page.

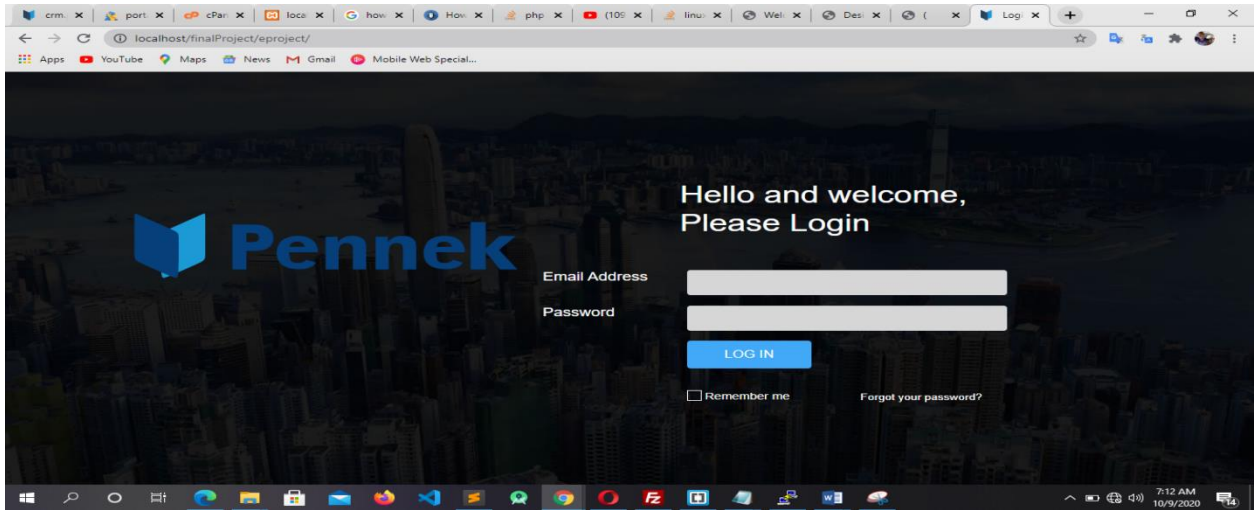


Fig 4.1: Homepage

Add Member Form: The Diagram below is a form that will be used to create an account for a new staff. There is need for valid character to be entered in the fields. This valid detailed information is for the full functionalities of the system.

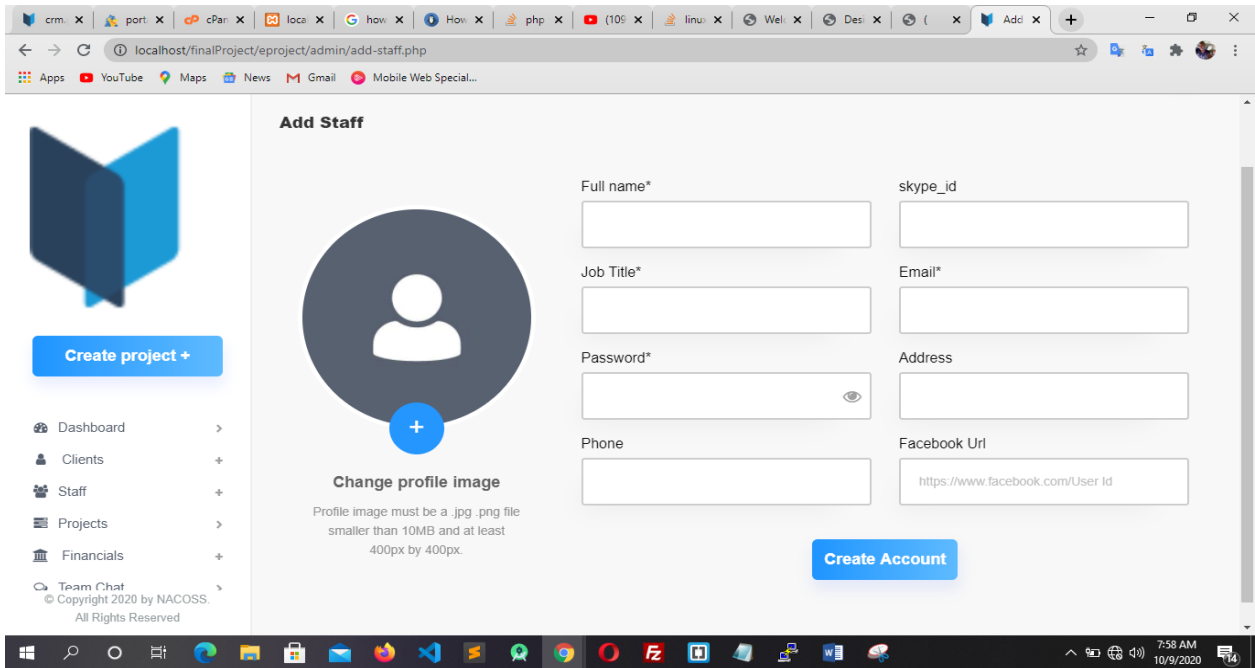


Fig 4.2: Add new staff

List of all registered staff: The screenshot below indicate list of all staff registered on the system, this page is only visible to the system administrator. He/she can carry out some operations on the staff such as edit and delete.

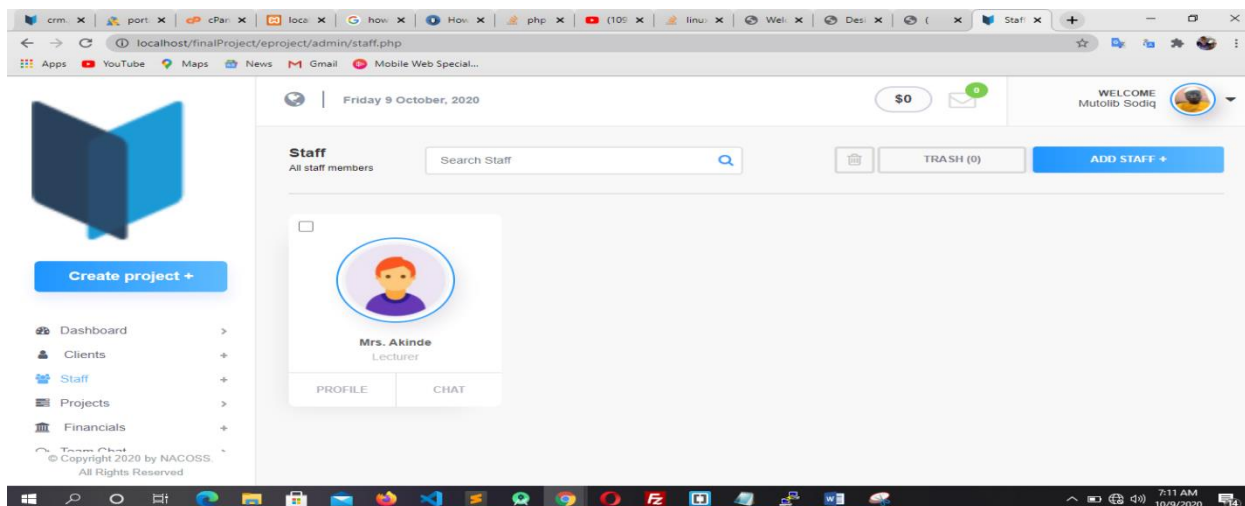


Fig 4.3: List of all staff

Chatting Interface: The interface below show the chatting interface where by individual staff can chat and transfer file with each other.

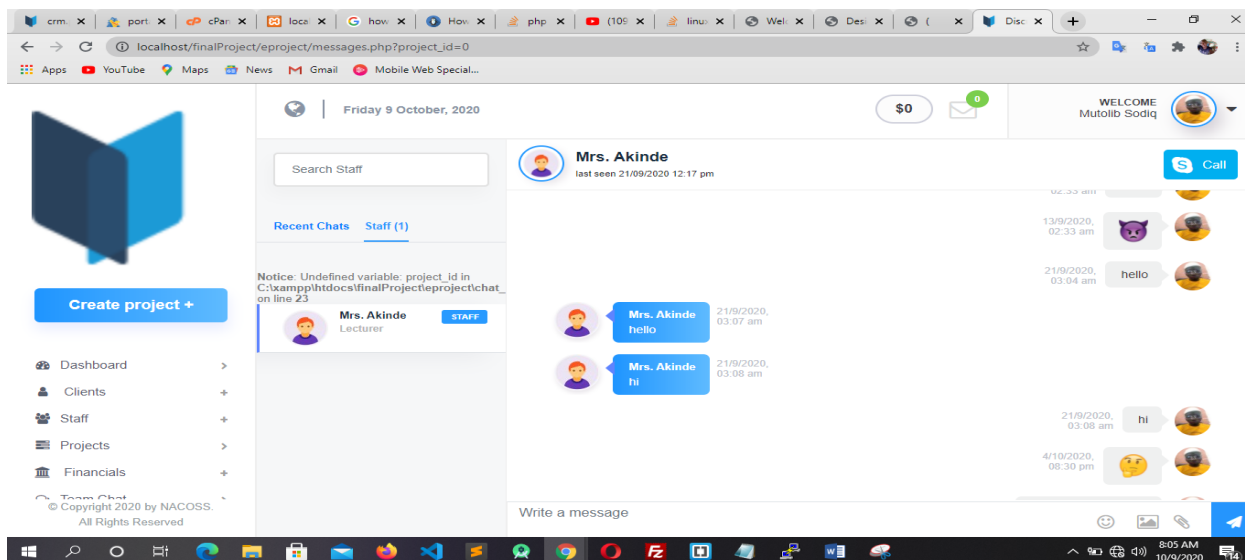


Fig 4.4: Chat interface

Group Chat Interface: The interface below show the environment where all staff can chat with one another for public announcement and dissemination of information.

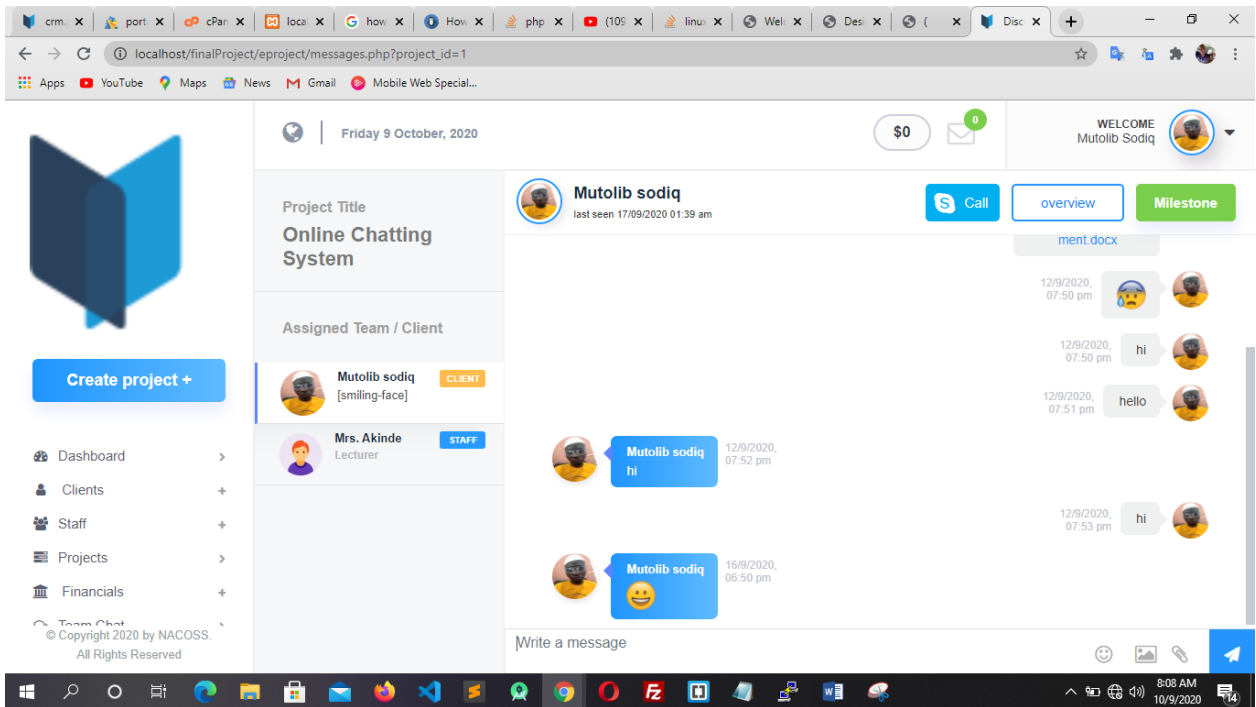


Fig 4.5: Group Chat Interface

Chat emoji Interface: The interface below show the environment whereby a chatter can pick an emoji to describe his/her expression without typing a word

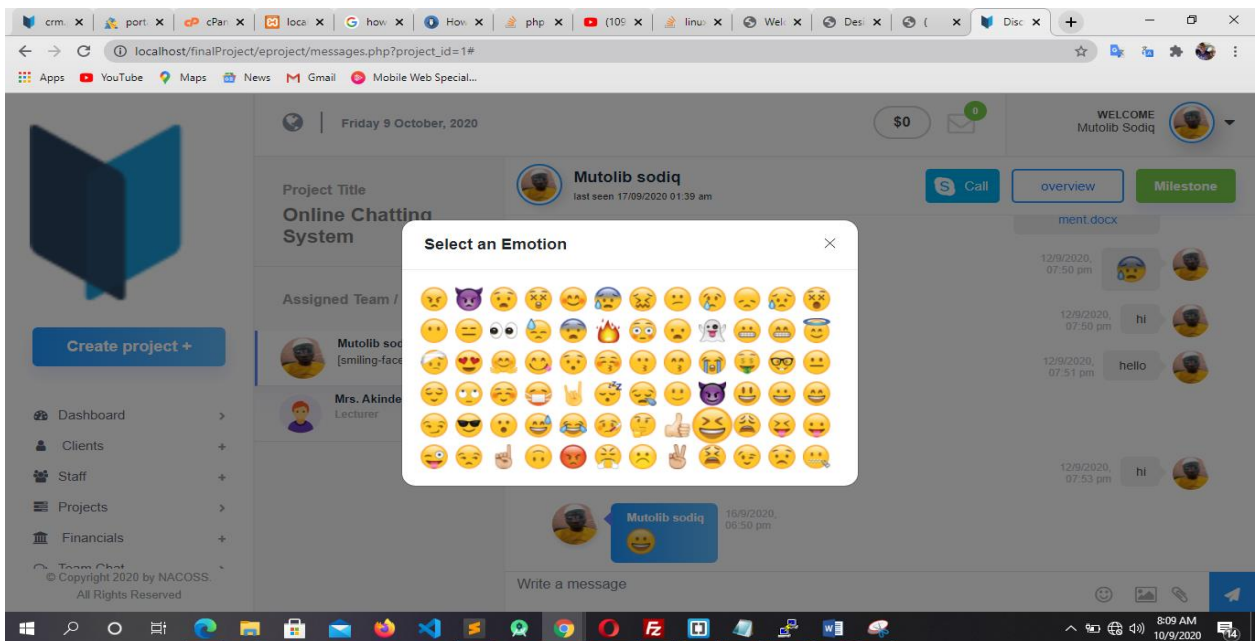


Fig 4.6: Chat emoji

CONCLUSION

Internet communication is getting more prevalent among the public. The chat, is a kind of Internet technology that supports human-to-human communication. Chatting applications enables people to stay connected anytime, anywhere from any part of the world. *The developed intranet chat system designed is a web-based intranet mail server management system that creates a secure platform for chatting and transferring of information and file within an organization in other to avoid bridging of vital information with the following benefits; Secured file transfer, Secured communication since the system will work on intranet and creation of group chat.*

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