

Integration of Virtual World with Existing Instant Messaging Services

Mangesh Bedekar and Rajat Goyal

Abstract—With billions of chat messages sent using Facebook and similar or rather more amount of messages sent using Google talk and Gmail Chat every day, we have millions of people who use instant messaging .But in the recent years there has not been much development in the human computer interface of various instant messaging clients and it remains restricted to sending message by typing in a textbox. This paper uses various XMPP based instant messaging services like Facebook Chat, Google talk and AOL chat as examples to describe how user experience can be enhanced by merging Virtual World with Instant messaging services.

Index Terms—Instant messaging, virtual worlds, XMPP.

I. INTRODUCTION

Since last few years there have not been much improvement in instant messaging clients .The development has come to a halt at the concept of receiving and sending text message by opening a window and sending message by typing in it. With more than two billion chat messages sent using Facebook Chat and similar or rather more amount of messages sent using Google talk and Gmail Chat every day, we have millions of people who use instant messaging. But there has not been much advancement in making the experience for user more immersive and entertaining rather than the old typing in textbox methodology. Currently all popular instant messaging clients are unable to address this issue of less user immersive instant messaging.

Virtual World commonly depicts a world very similar to the real world, with real world rules and real-time actions, and communication. Players create a character to travel between buildings, towns, and even worlds to carry out business or leisure activities [1]. The most famous virtual worlds on internet are World of warcraft and Second life. We are integrating our instant messenger with various virtual environments instead of a complete world, this means that our virtual environments are not related to each other and are not there on same map. These are discreet unit of virtual environments which can be a cafe, room or a beach. Two examples which are created for the use in our instant messenger are shown in Fig 1. We are using XMPP Protocol to provide communication with existing instant messaging services.

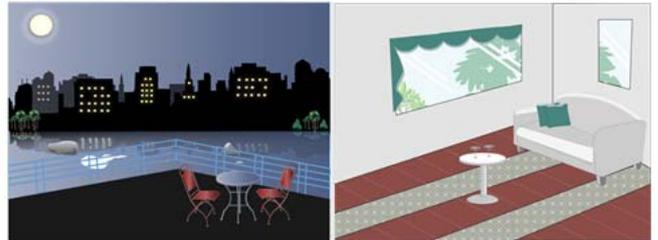


Fig. 1. Examples of virtual environment

II. OUR APPROACH

This instant messenger provides the ability to login using any XMPP protocol based instant messaging service and uses XMPP protocol to send and receive chat messages .The Extensible Messaging and Presence Protocol (XMPP) is an open technology for real-time communication, which powers a wide range of applications including instant messaging, presence, multi-party chat, voice and video calls, collaboration, lightweight middleware, content syndication, and generalized routing of XML data[2] . It has been used by many social networking platforms including gtalk, and facebook; collaborative services like google wave, and gradient; geo-presence systems like Nokia Ovi Contacts; multiplayer games like chesspark, and by many online live customer support and technical support services[3]. Yahoo! Also is now experimenting with open XMPP protocol. This means than user can login using his Facebook, Gmail, AOL account or any service which uses XMPP protocol for instant messaging.

After user logs in, we place his avatar in the virtual environment or if he is logging in for the first time we ask him to select his avatar after this we import his friend list from the service he used to login into the application, Fig. 2 Shows the login using Gmail account and the imported friend list, now he can use this messenger as any other instant messenger along with added benefits of virtual world. Now if the user wants to chat with anybody in his friend list he has to just select receivers name from the friend list, which produces two possibilities.

First, receiver is also using this instant messenger, then receiver's environment will change to your environment, receiver's avatar will appear on the sender's screen and sender's avatar will appear on receiver's screen and they both will be able to walk, sit, listen to music, physically interact with each other and chat with each other using our real-time type-telecast service by typing in the callouts. How we were able to achieve real-time type telecast service is described the later stages of this paper.

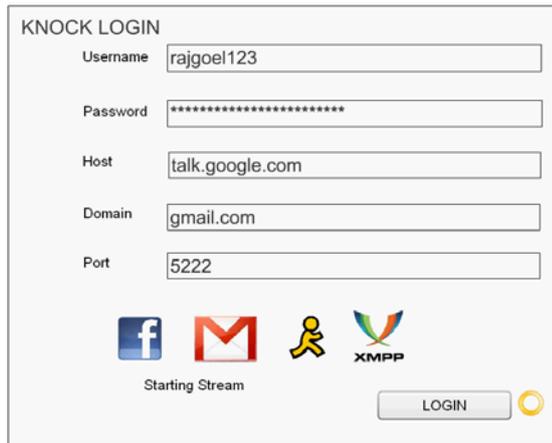
Second, receiver is not using this instant messenger , then

Manuscript received July 9, revised August 14, 2012.

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the receiver's dummy avatar will appear in your environment and you will be able to change its appearance and when you interact with this avatar, text related to your physical actions will be sent to receiver's text based client. For example, If you went and sat on the couch; a chat message will be sent stating "user is now sitting on the couch". or if you hugged the avatar of the receiver; a chat message will be sent stating "user hugged you". Also, receiver will be notified that the sender is using virtual environment based client and after which he will be sent with the list of all the actions he can perform in the sender's virtual environment by typing them as regular chat message. For example if receiver types "Slap" then receiver's dummy avatar will go and slap user's avatar.



(a)



(b)

Fig. 2. (a) The login screen with the option of login through various instant messaging services like Facebook, Gmail, AOL or any instant messaging service which uses XMPP protocol. (b) After logging in your Avatar gets placed in virtual environment and the friend list gets imported.

We are using Flash Media Server's shared object as the backend to provide various interaction within the virtual environment. With Flash Media Interactive Server or Flash Media Development Server, you can create and use remote shared objects, which share data between multiple client applications. When one user makes changes that Updates the shared object on the server, the shared object sends the change to all other users [4]. The remote shared object acts as a hub to synchronize many users. We use these shared objects to simultaneously run various function which are responsible for the movement and interaction of the avatar.

We also have tested our real-time type-telecast (similar to

what was done in Google wave) with 1sec lag, Which is very desirable as a chatting tool these days -no typing a couple of lines and pressing Enter, but real-time communication. We have used Actionscript 3.0 timer event with a time interval of 100ms to write to a file whatever text is there in the avatar's callout textbox and we are running cron job with duration of 1sec in php to check whether the file is getting updated or not, and as soon as the file gets update we send the updated characters to the receiver.

III. SOLUTIONS OF CURRENT PROBLEMS

The concept of virtual environment based Instant messengers has been tried before with Google lively and Cooee live messenger, but these Instant Messengers depend totally on their own independent instant messaging service which causes these problems,

- 1). Even when you have account on most famous instant messaging services in which you are connected to all your friends you still have to create new account for these instant messengers.
- 2). Most of your friends are not there on these instant messengers so you are left with very small social group.
- 3). All these instant messengers demand separate plugin or software to be downloaded on your machine.

Till now in our project we are able to solve all these problems by the use of XMPP protocol and Flash media server,

- 1). You can login using many Instant messaging services like Facebook Chat, Google Talk, AOL no need to create a separate account.
- 2). All your friends are already present in this instant messenger when you login and you can message friends who are using any other text based client.
- 3). We are using flash as our backend therefore it can run on any browser which has flash Plugin installed and 90% of the computers already have flash player installed.

IV. FUTURE WORK

For the future works, we are trying to improve the appearance of the avatar to provide a 3D user like looking avatar. Instead of pre rendering the graphics into 2D bitmap, we can integrate a Flash 3D engine to render the 3D model into isometric view in real time. Real-time 3D rendering is the next trend of Flash. There are several 3D engines available in the market that support rendering complex 3D models with animations. Papervision3D and Away3D are two examples among them. 23 Million People a month (and growing) are playing "Cafe World" on Facebook, which utilizes Away3D for its speed and flexibility. Cafe World is still in beta, but still very playable. The advantage of using 3D rendering in isometric is that the rotation of avatars can be very smooth. Also different textures can share the same model and different models can share the same animation skeleton. Thanks to this great graphic reusability, 3D rendering virtual world can create different combinations of avatar appearance and animations without adding extra graphic workload in development [5].

Second thing we are planning to do is to ask user to upload his/her photo and follow some steps so that we can map the texture of his face on the face mesh of the avatar. We are using a tedious but accurate method to extract the details of the face from user's photo, User has to upload his image and mark points and lines on his face, the lines and points which the user has to mark on his photo are displayed on a sample face. For demonstration we are using software called FaceShop[6] which uses a similar technique. The procedure and the results are displayed in Fig 3.

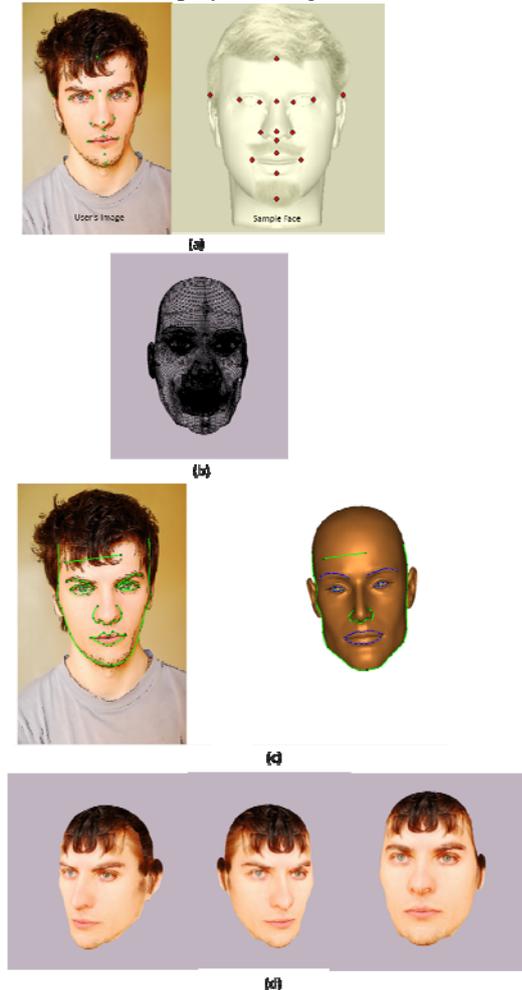


Fig. 3. (a) User marks some points on his face with the same order as the points are displayed on the sample face. (b) Avatar's face mesh is rotated and scaled according to the shape of the face of user. (c) User has to mark some lines on his face and on the similar position on the avatar's face mesh. (d) Resulting 3D reconstruction of the face.

ACKNOWLEDGMENT

We thank Kunal Agarwal and Abhishek Kumar (Students, Information Systems, BITS Pilani K.K Birla Goa Campus) who with us placed the starting stepping stones of this project.

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