4.3.3   Chat Box

When the user selects a contact that they wish to talk to, a chat box is produced using a servlet to generate the code. An AJAX request is made to the CreateChatBox servlet, which requires the selected contacts email as a parameter. This then produces all of the components required to chat: two simple text forms for inputting bits and messages to send, a text element for a chat log, a box for displaying the current bit queue, and a box to display any received bits. Each element's name includes the contacts email,for example *email*sendbits or *email*messages

Once the servlet has created the chat box it is sent in the response back to the chat.jsp page where it is added to the main div element as below:

```
xmlhttp.open("POST","/createchat",true);
var email = document.createChat["contactSelect"];
xmlhttp.setRequestHeader('Content-Type', 'application/x-www-form-
    urlencoded');
xmlhttp.onreadystatechange= function ()
 {
        if (xmlhttp.readyState==4) {
                if (xmlhttp.status == 200) {
                    var chatsNode = document.getElementById('chats
                        ');
                    var chatNode = document.createElement('div');
                    chatNode.innerHTML = xmlhttp.responseText;
                    chatsNode.appendChild(chatNode);
                }
        }
 }
xmlhttp.send("contactSelect=" + email.value);
                                                 }
```

4.3.4   Message Sending and Receiving

Messages to be sent are typed into the send text box on the chat form for the contact which is to receive the message. The message, along with the current bitstream and the destination address, is sent to a message sender handler via an AJAX call. This handler calls the obfuscator class, which performs the steganography, and sends the output via the channels api to the receiver. The result, with any words which contain bits in upper case, is returned to the sender handler, along with the updated bitstream, which is then written to the response and sent back to the chat form to be displayed. This means that there will be a delay between the message being entered by the user and the result being outputted to the