

Whiteboard Chat Application with Half-Duplex Communication

Joseph Butterworth
jdb1g20@soton.ac.uk
MEng Electrical and Electronic Engineering
Personal Tutor: Tracy Melvin

Abstract:

1. Introduction

2. Theory

2.1. QPainter

How will the send-window allow users to draw diagrams?
How will it display diagrams as they are being drawn, and how will it retain these diagrams so that they don't disappear when the window is repainted?

2.2. Threads and Mutexes

text

How will you use threads to send and receive these packets, while the rest of the application keeps running? How will you use mutexes to make any relevant collections "thread-safe"?

2.3. Serialisation

How will you serialize these commands into packets to be sent from the send window?

How will you convert binary packets into a stream of 1's and 0's? How will you transmit this stream in a reliable way? For example, you may need to signal when a bit is ready to be read, and when the receive window has finished reading the current bit.

2.4. Simplex, Half-Duplex, and Duplex Communication

How will you represent the drawing commands so that they can be sent to the other user whilst they are being drawn?

How will you receive and buffer packets at the other end? How will you deserialize them? How will you draw them on the receive window? How will you retain the currently received diagram so that when the window is repainted the diagram isn't lost?

3. Implementation

3.1. The GUI and Receive Window

text

3.2. The Serialise and Deserialise Drawing Commands

text

3.3. The Send and Receive Threads

text

3.4. Communication Protocol using Booleans

text

4. Final Application

5. Discussion

6. Conclusion

References

- [1] J. Walker, "Pathomechanics and classification of cartilage lesions, facilitation of repair." *J Orthop Sports Phys Ther.*, vol. 28, no. 4, pp. 216–231, Oct 1998.
- [2] A. Vasarhelyi *et al.*, "Partial weight bearing after surgery for fractures of the lower extremity—is it achievable?" *Gait Posture*, vol. 23, no. 1, pp. 99–105, Jan 2006.