



PEER-TO-PEER MOBILE COLLABORATION PLATFORM FOR REAL TIME VISUALIZATION OF MEDICAL IMAGE

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Medical images are very useful in medical diagnosis, because they can convey information literally cannot be conveying through other mediums such as text or voice. Thus, it can lift the accuracy of diagnoses significantly. Therefore, it is essential to have a robust infrastructure to facilitate storing and transferring medical images to the point of care when necessary. However, for a developing country like Sri Lanka, it is not possible to construct such a system to cover the whole country. Due to small geographical area and the well established mobile network, mobile technology is the most suitable method for Sri Lanka to fulfill this requirement. Therefore, an Android based peer to peer real-time collaborative platform has been developed to visualize medical images remotely. A DICOM (Digital Imaging and Communications in Medicine) reader has been developed to read DICOM images and convert them to bitmaps. Further, a customized gesture enabled image viewer is developed to view the images. The image viewer zooms, slides and rotates images with gesture events. Moreover, this app can facilitate discussing a case with an expert or a colleague in emergencies. In such virtual meetings, it provides features such as real-time collaborative drawing, texting, audio, and video conferencing. App uses Java socket connections to share images and data among mobile peers. To establish such connections, device either needs to have a public IP (internet protocol) address or all the peers should be in the same local IP range. However, due to peer-to-peer communication, peers can communicate with each other without connecting to a centralized server. Besides, it uses number of security measures to assure the privacy and security of sensitive medical data. The results show that the app has made positive impact on real-time visualization of medical images.

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