Secure QR Code System for Distributed Large Payload Transmissions

A technique to enable secure transmission of large payloads using QR codes

Georgia Tech researchers have developed a novel technique to enable secure transmission of large payloads using QR codes. The technique enables the use of this technology to perform functions such as file transfers along with enabling encrypted/unencrypted and/or compressed/uncompressed formats. It is also able to provide lossless transmission between two devices with specific handshaking routines incorporated within it. The stream of QR codes transmitted by this technique allows for grid, pairs or single method of data transfer. Synchronous or asynchronous transmission can also be employed using this technique without requiring any new components to be added in smart phones or other smart devices employing this techniques. The presence of a display and a camera is enough to ensure that the technique can be integrated and used with the device. By incorporating aspects such as machine learning, deep learning and reinforced learning into the algorithms, the inventors are able to provide for enhanced error minimization and lower the impact of issues such as re-transmit requests and battery drain that could occur. In this manner, the inventions conveys a simple and easy-to-use method for transmitting large data payloads through QR code technology.

Summary Bullets

- Increases opportunities for utilization of QR codes for various applications
- Overcomes limitations such as small payloads and limited linking capabilities in current QR technologies/systems
- Incorporates the ability to transmit data with different layers – encrypted/unencrypted, compressed/uncompressed and others

Solution Advantages

- Increases opportunities for utilization of QR codes for various applications
- Overcomes limitations such as small payloads and limited linking capabilities in current QR technologies/systems
- Incorporates the ability to transmit data with different layers – encrypted/unencrypted, compressed/uncompressed and others
- Uses advanced techniques such as deep learning and machine learning to help with error minimization

Potential Commercial Applications

A variety of applications could utilize this technology to provide a better user experience. Larger payloads could enable transmission of secure emails, fax and print jobs, remote desktop, instant message, books and many others. Another area where this could have a significant impact would be in transmitting printed and electronics books, TV capture, social media capture and other similar items for persons who are blind.

Background and More Information

QR codes are becoming a frequently used technique for speeding up business and personal transactions such as purchasing, authentication and many others. Current QR code systems tend to suffer from a number of limitations such as size of the payload (i.e. useful data), overhead and small number of linkages limiting the ability for larger payloads to be transmitted. Use of compression and encryption techniques provide some relief but not enough to enable more complex applications with very large payloads to be implemented and transmitted via QR code technology. Overcoming these limitations using novel adaptations and innovative techniques is the focus of this invention.

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