Abstract
Quantum Communication Simulator as a Simulation Tool for Quantum Communication Experiment.
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For decades now, researchers have been trying to figure out how we can use the enormous potential of quantum mechanics to build a whole new generation of computers. According to Microsoft's research lab, we could crack the quantum computing code within the next 10 years. Fortunately, both Google and Microsoft are extremely invested in the idea of quantum computers. They believe this quantum technology will be vast demand in near future. Quantum cryptography sets goal towards the holy grail of absolute security in the cryptography domain. However, lack of efficient simulation based on the performance analysis tools may cause delay in achieving the goal. On the other hand, the real quantum experiment and quantum communication require expensive components and inefficient. Hence, a powerful performance analysis tool with ease to handle will give benefit to all the researchers in the area of quantum communication.

We are proposing an efficient simulation tool called as Quantum Communication Simulator. Quantum Communication Simulator is a tailored simulation tool for quantum communication experiment that may give benefit to the theorist, experimental, hardware developers and also the end user. The Quantum Communication Simulator should aim for both the performance oriented and also the cost oriented. The Quantum Communication Simulator is based on drag and drop interfaces with a complement functions such as budget estimation, cost planning, online collaboration and inbuilt which align with quantum communication experimental models. Further, estimation of cost is also included to assist budgeting and decision making process. Modelling and performance analysis or testing the real quantum experiment is expensive due to the nature of optical components. In order to overcome this problem, a Quantum Communication Simulator is needed to model and simulate the real Quantum communication experiments. The motivation for this particular Quantum Communication Simulator is the culmination of lead researcher's respective fruitful researchers from digital security, high-speed network and quantum computation. Therefore, a Quantum Communication Simulator is needed to model and simulate the real quantum experiment and quantum communication.

The Quantum Communication Simulator is a comprehensive design and analysis tool for quantum experiments to cover the gaps of deficiency of theoretical and experimental research. This simulator is a realistic simulation of transmitter, channel, receiver modules based on hybrid simulation techniques with the advantages of drag-drop interface. Thus this simulator also add special versatile features such as online teaching, collaboration and market survey that end up with a complete solution package. The proposed Quantum Communication Simulator is an added package/library which is based on the established open source and can give a great benefits to the people to explore more Quantum communication experiments. Furthermore this product will offer a good price to the society as an alternative paradigm for digital communication in providing security by laws of quantum mechanics that would be less expensive, more applicable and convenient.