



# DATA FEEDER

# QUANTUM DATA FEEDER





# PROJECT MEMBERS

- Chethan Reddy Chinthaparthi
  - Nandha Kishore B
  - Akhil Bodi
  - Mekala Karthik
  - Rajaramachandran Sivaraman
- 
- 

# INTRODUCTION

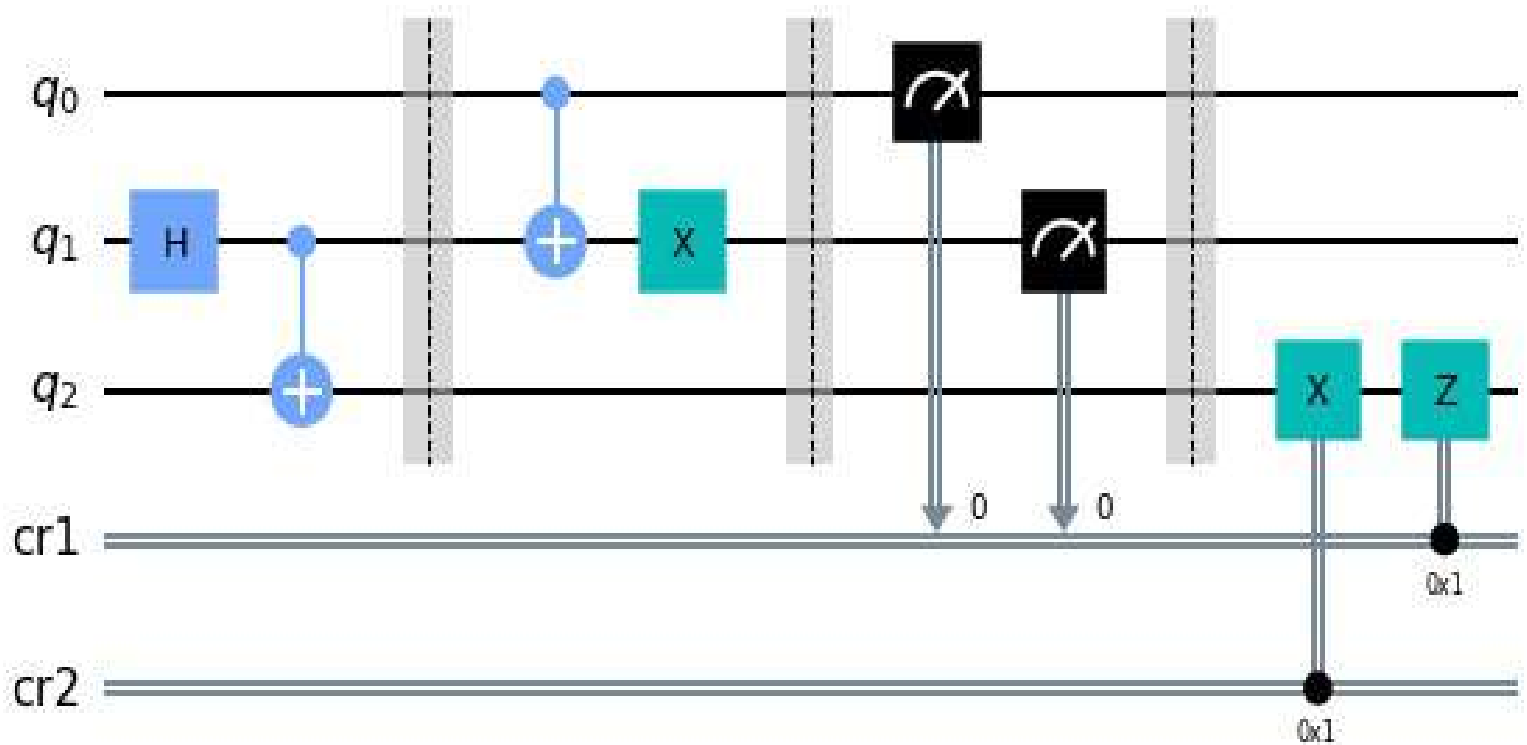
- Quantum teleportation is a “disembodied” transfer of quantum states from one location to another.
- The quantum teleportation of a qubit is achieved using quantum entanglement, in which two or more particles are inextricably linked to each other.
- Quantum teleportation is an **important means for transmitting information in quantum computing.**

# PROJECT IMPLEMENTATION

- In Quantum Mechanics there is a theorem that's called the "No Cloning Theorem", where you cannot identically copy a "Quantum state". Here we can use "Tomography" to have many copies of the Qubit and we can come really "close" the Qubit value. But you cannot identically or exactly copy it.
- So using "Quantum Teleportation", we can achieve this. Upto now we only tried one qubit state copied or teleported to other qubit.
- But in Data Feeder, We are going to teleport entire Text file and Image using many number of Qubits and its Quantum State.



# BASIC ALGORITHM CIRCUIT



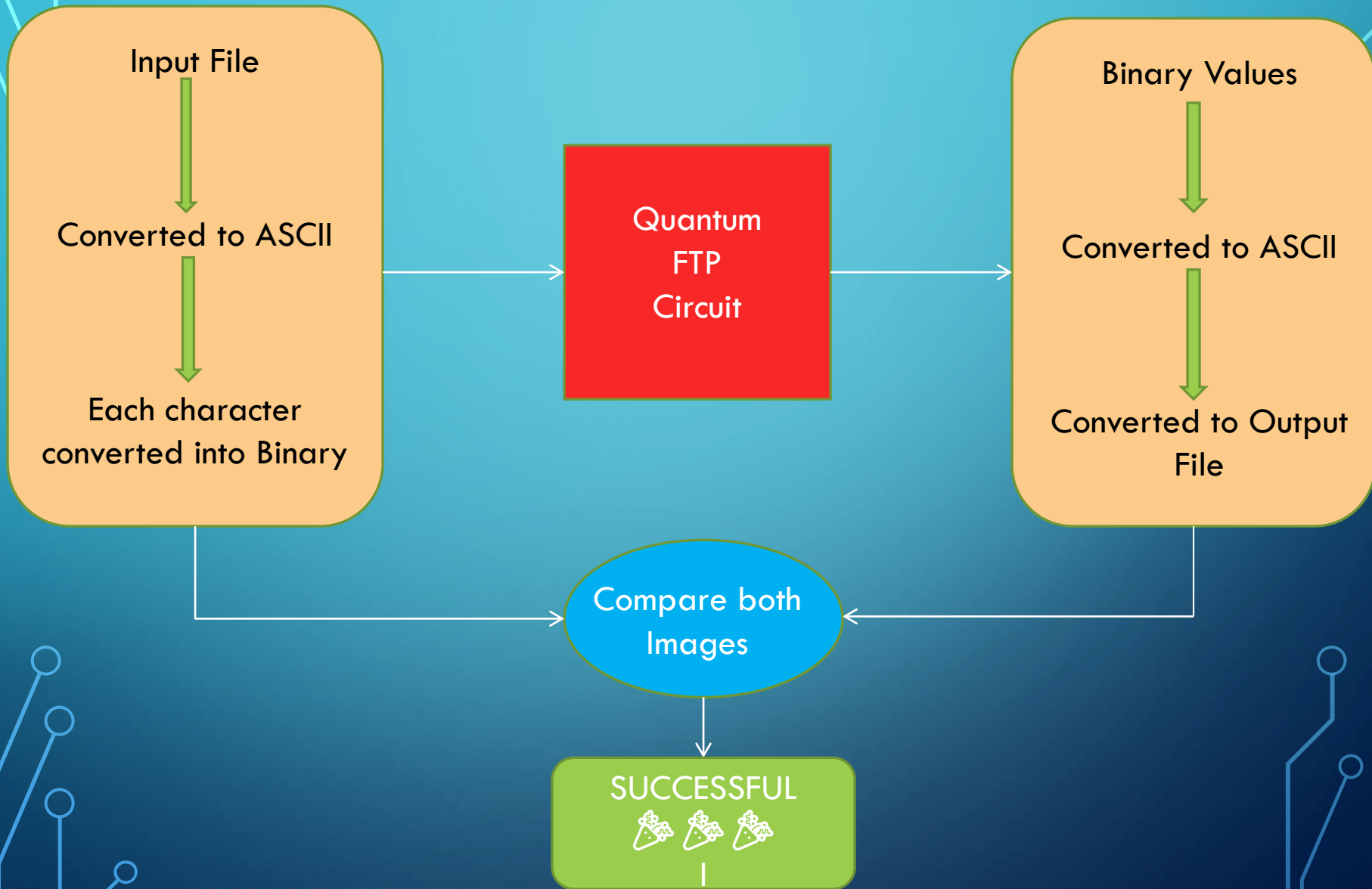
# FILE TRANSFER PROTOCOL

- The Files with .txt format are accepted as input and converted into Binary digits.
- Each Character in the Text file is Converted into Binary digits having 8 bits of Information and sent into the circuit for Teleportation.
- Total of 24 Qubits are used in achieving this Teleportation Protocol.
- The Circuit runs Multiples times according to the Character Input.
- Using the QASM\_Simulator we achieved the teleportation of the Text File with High Security and no loss of Data.

## NOTE:

The Compilation time for the Circuit depends up on the input size of the Data.

# BLOCK DIAGRAM OF FTP

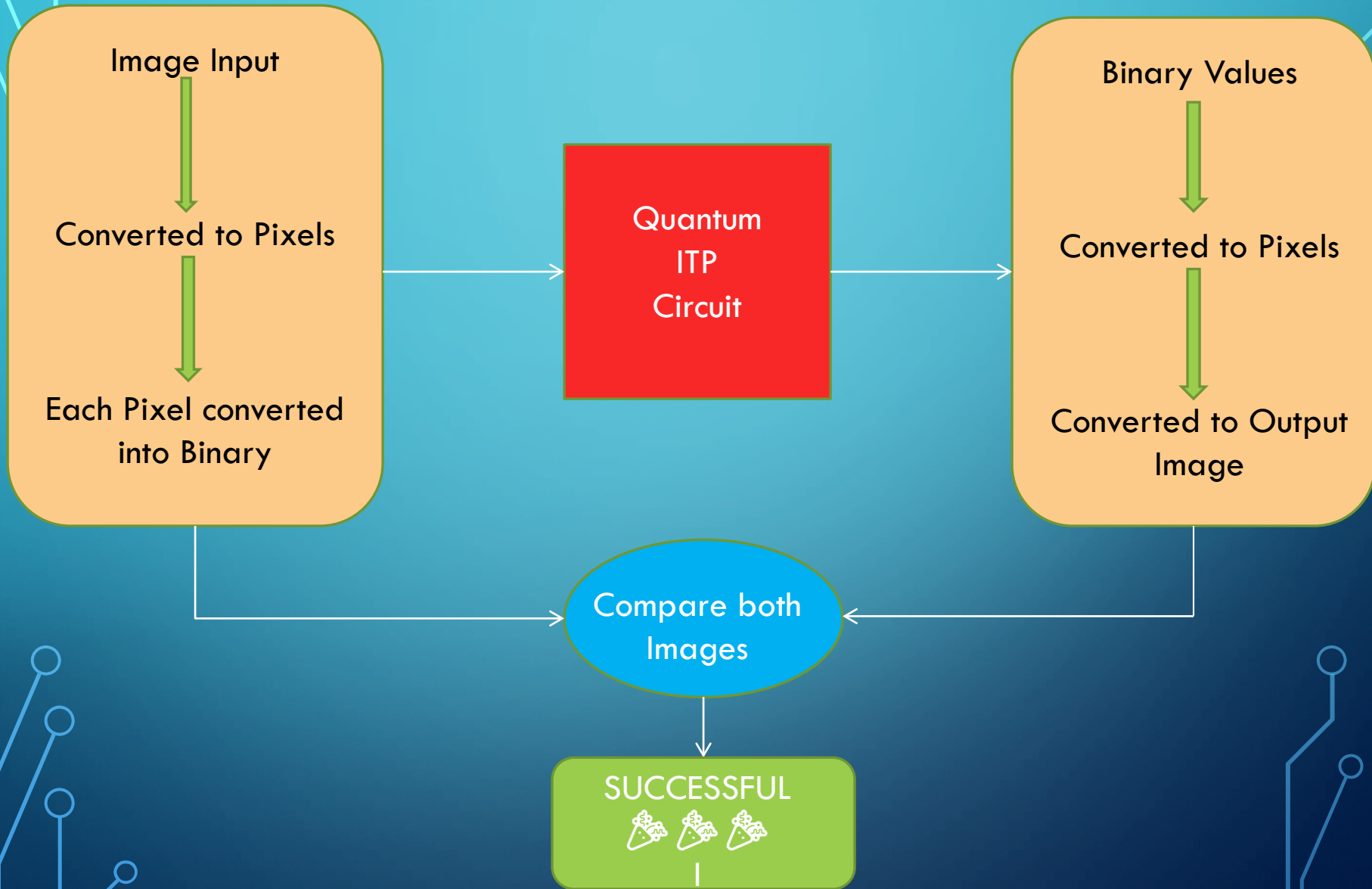




# IMAGE TRANSFER PROTOCOL

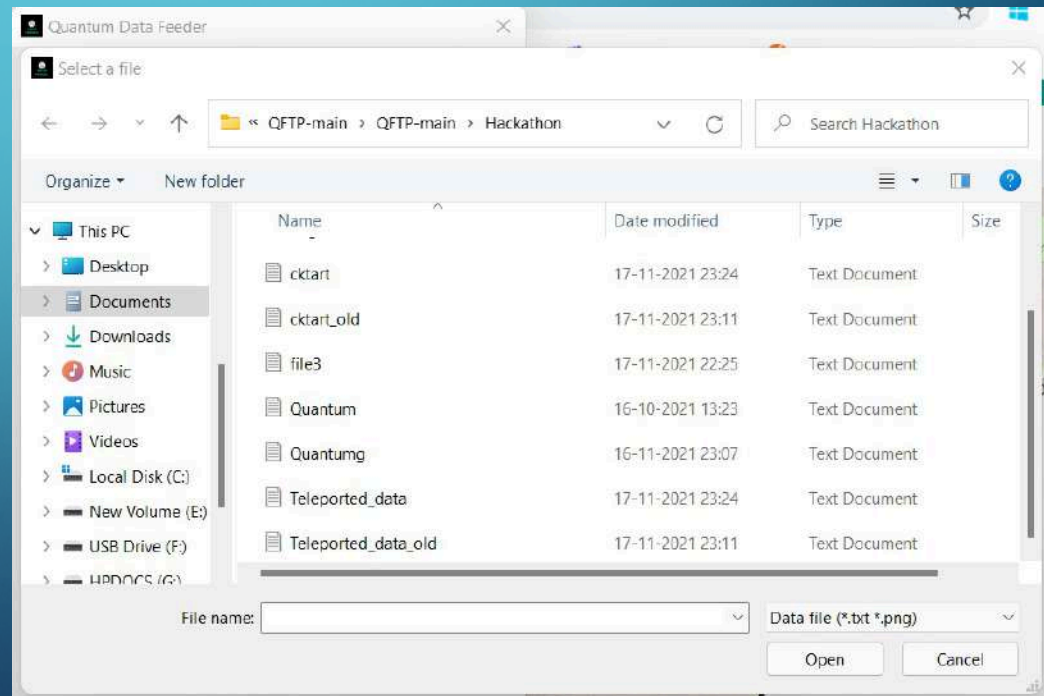
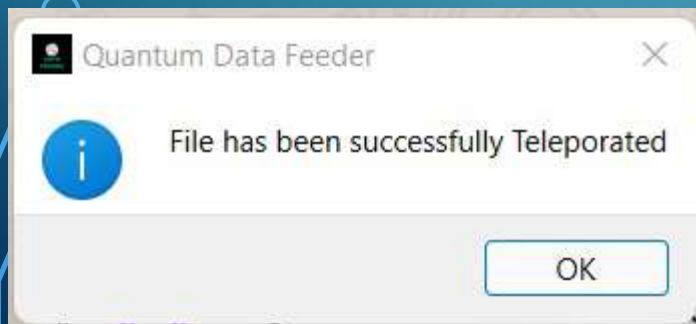
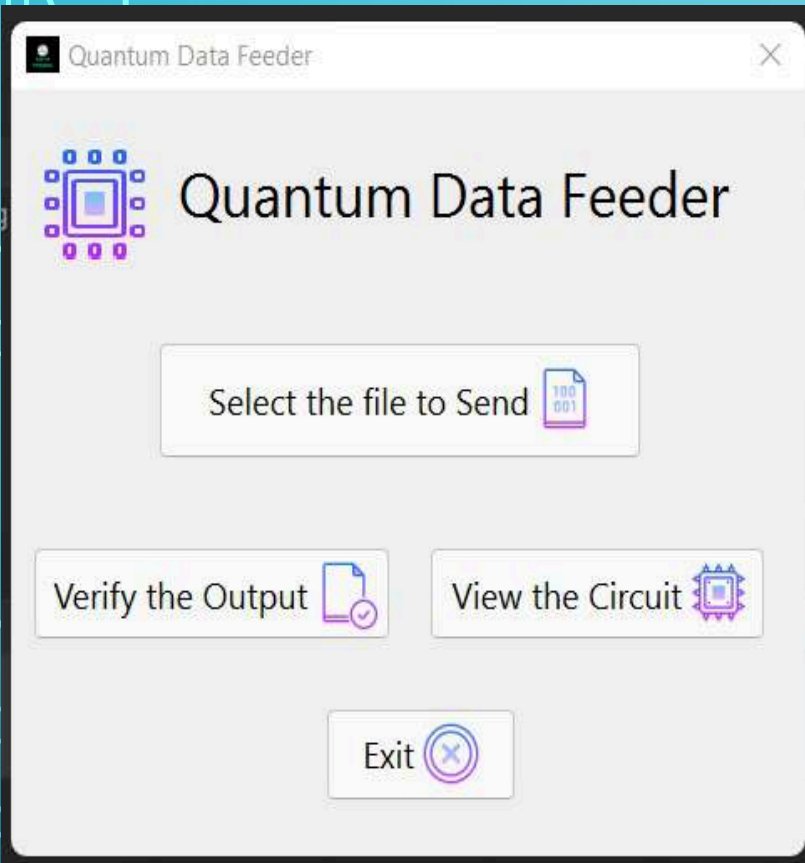
- The Images with .png format are accepted as input and are broken down into Pixels which are converted into Binary digits.
- Each Pixel of the Image is Converted into Binary digits having 9 bits of Information and sent into the circuit for Teleportation.
- Total of 27 Qubits are used in achieving this Teleportation Protocol.
- The Circuit runs Multiples times according to the Character Input.
- Using the QASM\_Simulator we achieved the teleportation of the Text File with High Security and no loss of Data.

# BLOCK DIAGRAM OF ITP



# GUI FOR DATA FEEDER

- We developed a simple GUI to select the File( txt,png).
- PyQt platform was used for the GUI.
- You can use the GUI to verify the Output and Circuit.



# REFERENCES

- <https://www.indiatimes.com/technology/news/scientists-have-achieved-quantum-teleportation-with-90-accuracy-over-a-44-km-distance-530981.html>
- <https://www.sciencedirect.com/topics/mathematics/quantum-teleportation>
- [https://scholar.google.co.in/scholar?q=Quantum+teleportation+achievements&hl=en&as\\_sdt=0&as\\_vis=1&oi=scholar](https://scholar.google.co.in/scholar?q=Quantum+teleportation+achievements&hl=en&as_sdt=0&as_vis=1&oi=scholar)
- [https://en.wikipedia.org/wiki/Quantum\\_teleportation](https://en.wikipedia.org/wiki/Quantum_teleportation)
- <https://news.fnal.gov/2020/12/fermilab-and-partners-achieve-sustained-high-fidelity-quantum-teleportation/>