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This project sought to understand the principles involved in quantum teleportation. The protocols involved in the transfer of one qubit were reviewed in detail.

The initial problem is the transfer of an unknown state from a sender Alice to a receiver Bob both of whom share a classical communications channel as well as a pair of entangled photons. Alice makes an appropriate measurement on her system of the unknown state and one of the entangled photons as a projection onto the Bell Basis. The resulting measurement which is a random piece of classical information is then sent to Bob via the classical channel. Bob uses this information obtained from Alice to choose an appropriate unitary transformation to transform his part of the entangled pair into the original state that Alice wished to send initially. It is important to note that a copy of the state is not made since the measurement destroyed the original. Therefore the "no cloning" theorem is not violated.