This project aims to improve entanglement and make error correction more efficient for the eventual goal of building quantum computers. A theoretical study was conducted to explore a new approach for performing a joint measurement on qubits in a semiconductor structure. The basic idea of a joint measurement is to perform a measurement on the system without knowing the individual states. These joint measurements can be used to entangle qubits and form the basis of error correction procedures that are currently not accessible in experiment. In the simple case of two spins, that involves distinguishing between whether they are in the same state or in different states without revealing the state of the individual spins. In modelling this procedure through a transfer matrix approach, it is demonstrated that such joint measurements can be performed in principle although there are experimental limitations due to increasing sensitivity in barrier parameters and noise.