Texas Holdem Poker

In this project, we implemented a version of Texas Holdem poker. This involved creating a GUI allowing users to play poker against a bot. We wrote the code for this project in Python and relied on object oriented programming, specifically inheritance. Our bot AI uses a variation of the Monte Carlo Algorithm; the bot uses this algorithm to determine its probability of winning before choosing which move to make.

Quickest Path Finder

This project consists of a server client relationship between an Arduino client and a PC server running Python. It allows users to scroll through a map of Edmonton using the Arduino and select a start/end point; The Arduino then sends that information to the Python server where, using Dijkstra’s Algorithm, the shortest path is calculated and displayed on the map.

Encrypted Communication

Symmetric key encryption between two Arduinos was used in this project, allowing the users to chat privately. The communication involved a client server relationship dependent on two finite state machines. The encryption was based on both users creating a shared key from two random private keys and a public key. As each character was sent, the shared key would automatically change. The dynamic nature of the encryption increased security drastically, preventing against brute force attacks.