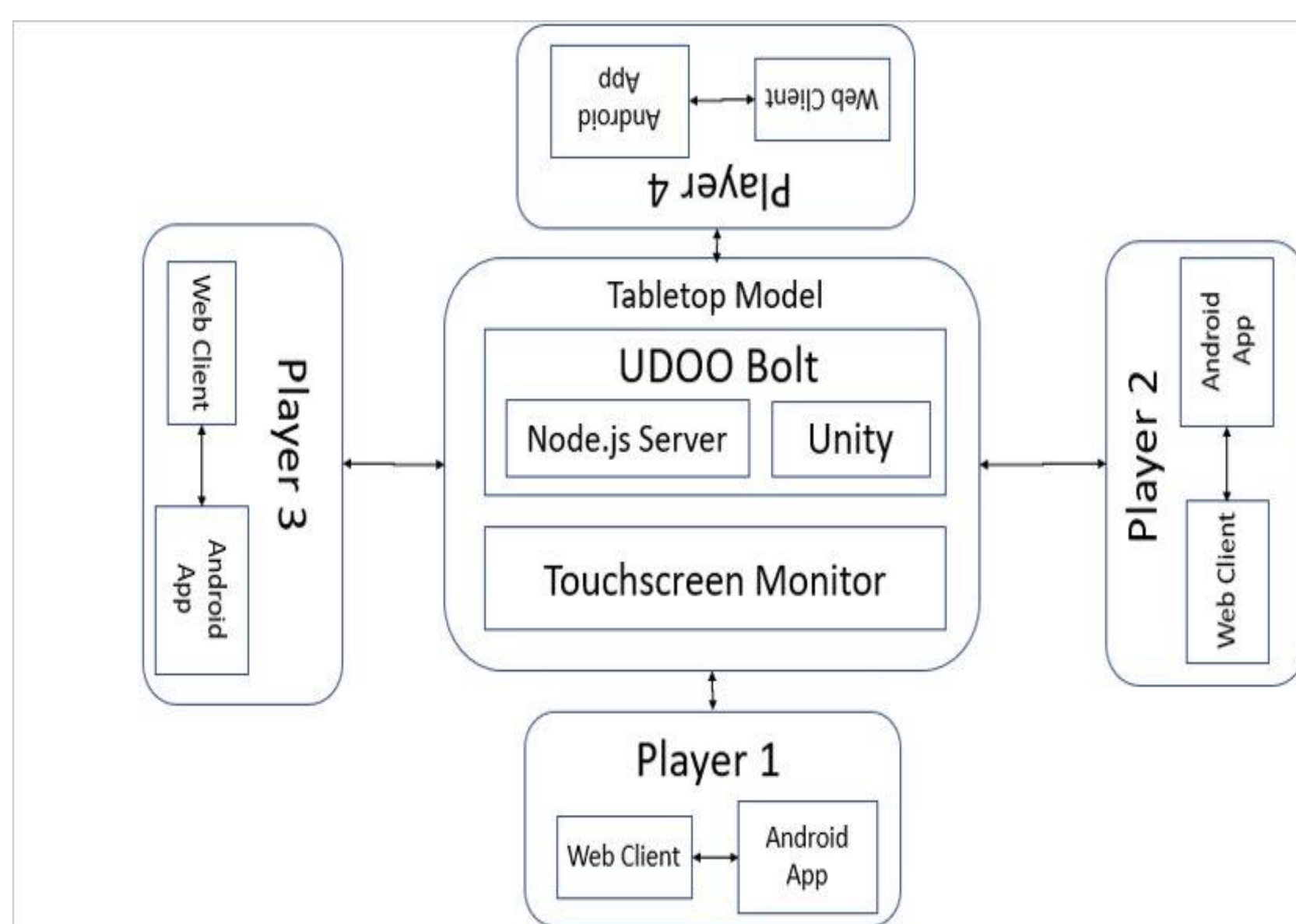


Abstract

The purpose of this project is to design and develop a Tabletop that has touchscreen capabilities in order to play multiple boardgames. The idea behind this is that it will save space in an users' home because they will not be clutter with multiple board games boxes. This project will also eliminate the cleanup time that comes with playing board games along with the fear of losing tiny game pieces.



Requirements

- *Create Monopoly
- *Create The Game of Life
- *Create Catan
- *Players Connect Via Website or Android App
- *The screen must have touchscreen capabilities
- *Must Communicate Via Internet

Tabletop Design

The physical tabletop was created with wood in order to create a study housing for our monitor that displays the game that is being played. The tabletop was designed to house the UDOO Bolt V3 which is what is allowing the games to run.

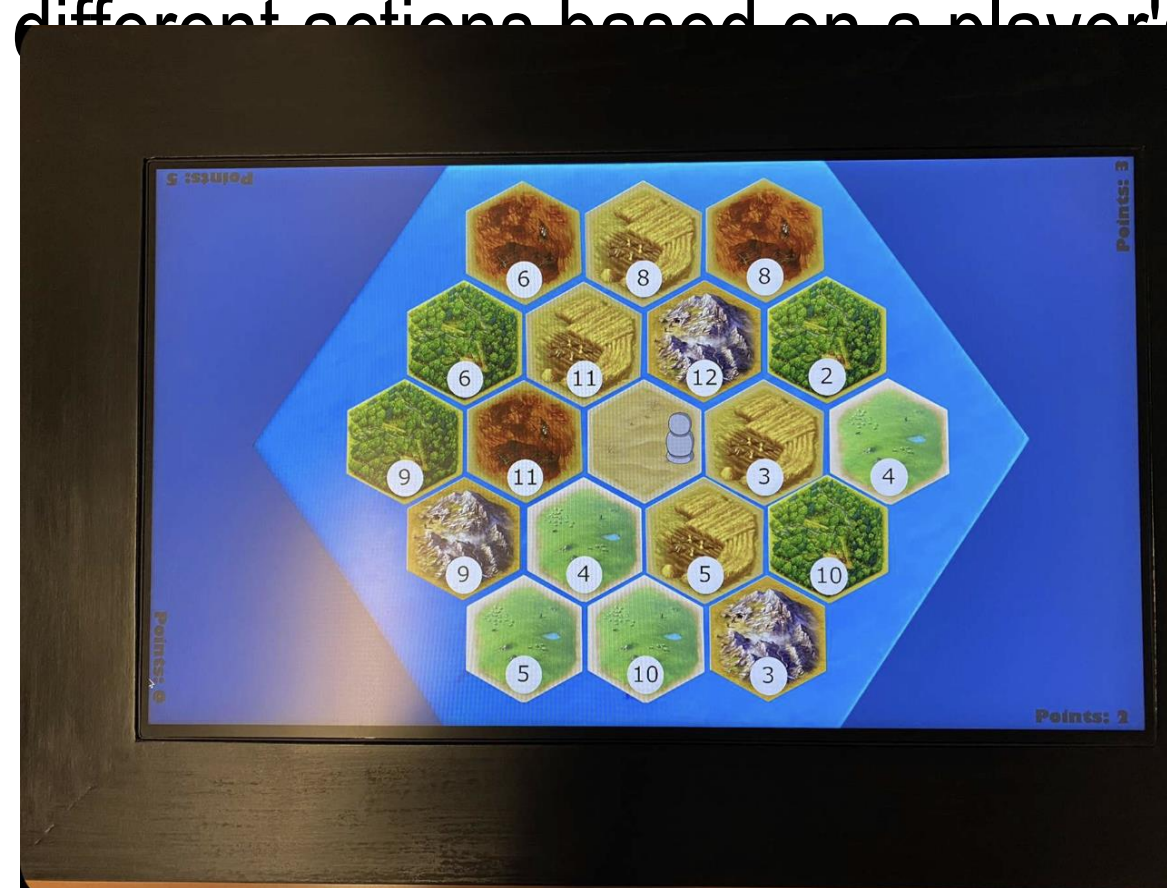


Game Designs

The visuals for all three games came from sprites using unity editor game objects. These things included player pieces and game pieces that normally would be on a physical board.

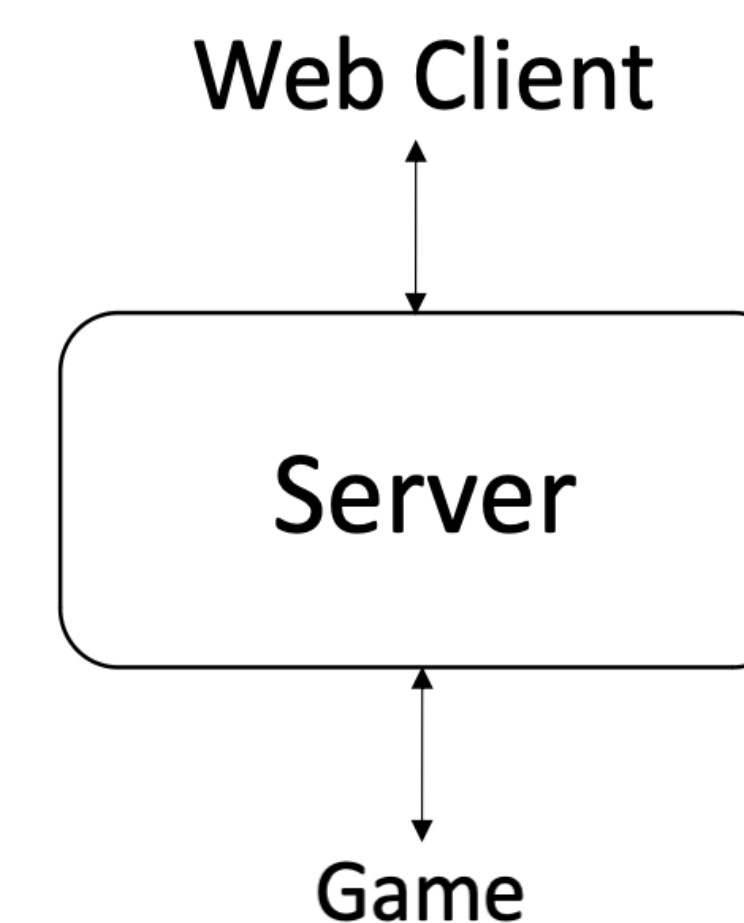


The processes of playing the games all came from the scripts written in C#. These scripts allowed the games to take data and manipulate it to perform different actions based on a player's decisions.



Server Client Communication

The server is the message handler for all the communication between the client device and the game being played. It directs the inputs from the device to the game. It also directs information from the game to each certain client, for example someone's money will get sent to them to be displayed on the device.



Testing

There were two main test that were important to each of the games. The first being connectivity and the second being playability.

When testing the connectivity, we test the information being sent to the client and the game itself. The tests performed during this phase were message reception, message sent, and message contents. We needed to be sure that a message was being sent and delivered along with the contents being the expected value or data.

When testing the playability, we tested that the information collected was doing the correct function or functions. A majority of this phase of testing was playing the respective games while noting things that didn't work correctly

Future Development

The first thing that we would want to accomplish with future development would be adding new features to the existing games. These new features include a reconnect function if you get disconnect from the game. Another would be adding trading to monopoly.

The second thing we would like to do is adding more games. Since the hardware is already there it would make sense to continue to add more boardgames to the tabletop. Some games that we have discussed that could be added were Risk and card games such as Poker or Blackjack

The last thing that we could with future development would be adding more devices like iOS and other phone or tablet devices.

Lessons Learned

The first lesson we learned while doing this project was WebSocket communication. The communication between the games and the player device was the biggest hurdle to overcome in this project.

The second lesson we learned was learning a new programming language at a quick pace. In order to complete this project, we had to teach ourselves new programming languages.