Background
Cougar Entertainment Center (CEC) uses Zone Laser Tag system by HELIOS. The system that CEC owns require that they maintain vests for players to use, a Windows-based PC to control the game server and licensing, a unit called the “ZEB” (an ethernet/rf transceiver of sorts), two team bases, a “mine”, an android tablet with an IR blaster attachment, and a wall mounted button used to start games. Their main selling point is low maintenance and high reliability of their equipment. However, the user interface and software experience leaves much to be desired.

The current printing system is not formatted to print correctly on the sheets Helios supplies. The front lobby display only will show the last game’s stats and could look better overall. In addition, the membership system is completely down and needs to be remade.

The main goal of the project is to improve the lobby display in the lobby and fix the printing system. Steps were taken to implement membership in the future. Our website acts as the lobby display and a place to find stats from old games.

Architecture

User Interface Design
The web interface displays information about the current game in real-time on the web. Postgame summary can be viewed on a separate page which shows more in-depth stats and can be reached via a QR code at the bottom of the score printouts.

Real Time Positioning System
1) NUC, anchors, and WIFI are turned on
2) tag/Raspberry Pi broadcasts "I'm here"
3) NUC acknowledges broadcast
4) NUC requests signal from a tag
5) tag requests its position via UWB
6) anchors respond back via UWB
7) tag triangulates its position from signal
8) tag sends signal to NUC via WIFI
9) NUC sends information to database
10) Steps 4 - 10 are repeated for next available tag

Technologies Used
pozyx®  RabbitMQ
Django  LaTeX
PostgreSQL  HTML  CSS

Printing
Old printout  New printout

Future Work
- Display RTL data on customer display interface
- Refine accuracy and stability of RTL system
- Web interface improvements
  - Membership system
  - Additional player achievements
  - Post-game stats (off-site view)
- Stabilize data input flow

Glossary
NUC - Intel NUC is a Powerful 4x4-inch Mini PC
CEC - Cougar Entertainment Center

Special Thanks:
Cougar Entertainment Center

Team Swift