

TournaFence

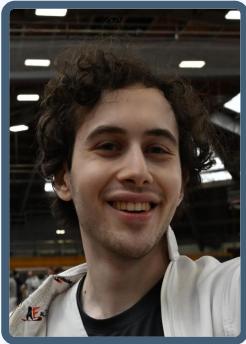
By fencers, for fencers



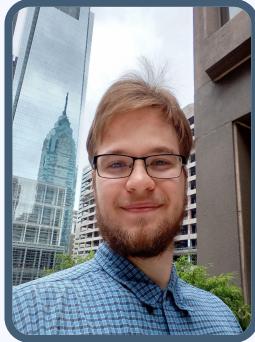
Meet The Team



Luka Specter



Ben Neeman



Henry
Shannon



Tasnim
Rahman



Luke
Ricciardi



Ruchika
Mehta



Max Iticovici

01

What is TournaFence?



Introduction

Why TournAFence?

- ❑ Created out of passion by our fencing team
- ❑ **Solves real problems**
- ❑ No more paper and pen
- ❑ Entirely mobile tournaments
- ❑ **Real-time scoring**
- ❑ Live bracket updates



Luka ←



Henry →

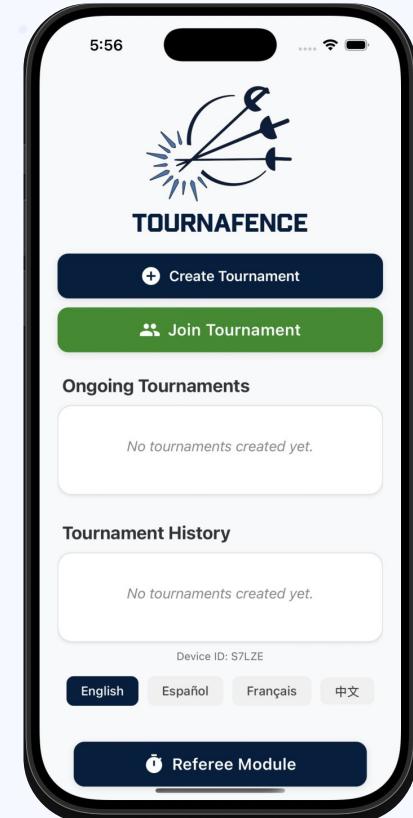


Objective:

Make fencing tournament creation accessible and simple

How we keep the focus on fencing:

01. Functionality for casual /higher level events
02. A modern, mobile alternative to outdated \$800 software
03. Simplifies the experience for
 - a. Tournament organizers -intuitive UI, multi-platform
 - b. Referees – no more paper slips
 - c. Fencers & families – live tracking, real-time updates
04. Mobile-first = **clean, streamlined** interface



Our competition: Fencing Time

Fencing Time Trial Version - New Tournament

File View Reports Tools Help

Save End Tournament Score Bout ID# Refresh

Tournament Edit Senior Mixed Foil

New Tournament

Philadelphia, PA, USA
12/2/2024 Authority: USFA

Events (double-click to view): Senior Mixed Foil

Senior Mixed Foil - Possible Unrated Event

Summary

Date & time of event: Monday, December 2, 2024 9:00 AM
Day 2 date & start time: Monday, December 2, 2024 9:00 AM

Event fee: \$0.00 Operator name:
Classification level: Open Assigner name:

Age level: Senior (13+) Gender mix: Mixed
Wheelchair category: None

Seeding method: Seed by classification (letter/year) only Change...
Event format: Pools with 100% promoted to direct elimination, no fence-off Change...
 Select rounds automatically based on format
National qualifier: Not a qualifier

0 Competitors

✓ 0 checked-in
? 0 absent
✗ 0 scratched

By Club (0) By Division (0) By Country (0)

Club	Count

Add Fencers to Event

Fencer search criteria:

Last name: <input type="text"/>	Country: All countries <input type="button" value="▼"/>	Born: any year <input type="button" value="▼"/>	and <input type="button" value="▼"/>
First name: <input type="text"/>	Division: All divisions <input type="button" value="▼"/>	Rating: Any <input type="button" value="▼"/>	Unrated <input type="checkbox"/>
Nickname: <input type="text"/>	Club: All clubs <input type="button" value="▼"/>	Gender: Either <input type="button" value="▼"/>	Member #: <input type="text"/>
<input type="button" value="Clear"/>		Limit search to 500 matches <input type="button" value="Search"/>	

Select which fencers to add:

Last	First	Primary Club	USFA Division	Class.	Born
Akhmedova	Kamelia	Drexel	Philadelphia	U	
Beauchamp	Declan	Drexel	Philadelphia	U	
Bishop	Avery	Drexel	Philadelphia	U	
Bunker	Tim	Drexel	Philadelphia	U	
Chiang	Sydney	Drexel	Philadelphia	U	
Chong	Anthony	Drexel	Philadelphia	U	
DiDomenico	Drew	Drexel	Philadelphia	U	
Dunn	Jack	Drexel	Philadelphia	U	
Greaves	John	Drexel	Philadelphia	U	
Grimaldi	Sara	Drexel	Philadelphia	U	
H	Gavin			U	
Hakberdiyeva	Vazira	Drexel	Philadelphia	U	
Hetch	Joel	Drexel	Philadelphia	U	
House	Alix	Drexel	Philadelphia	U	

Created in 2002.

Event Competitors

Senior Mixed Foil

This event should have started 8 hours 20 minutes ago

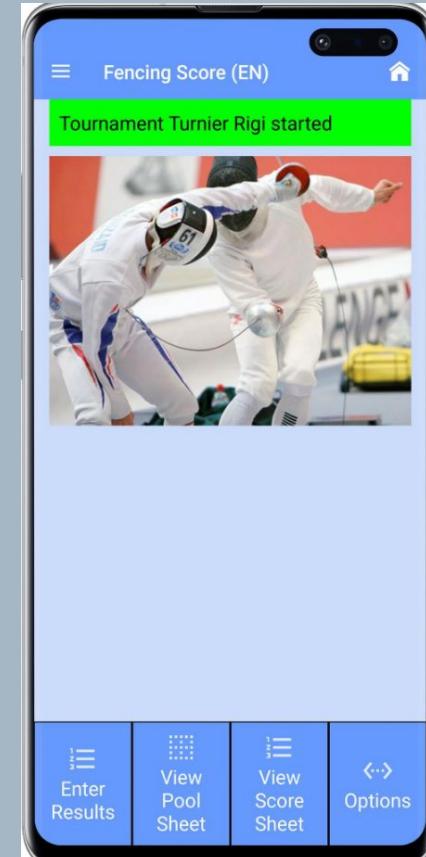
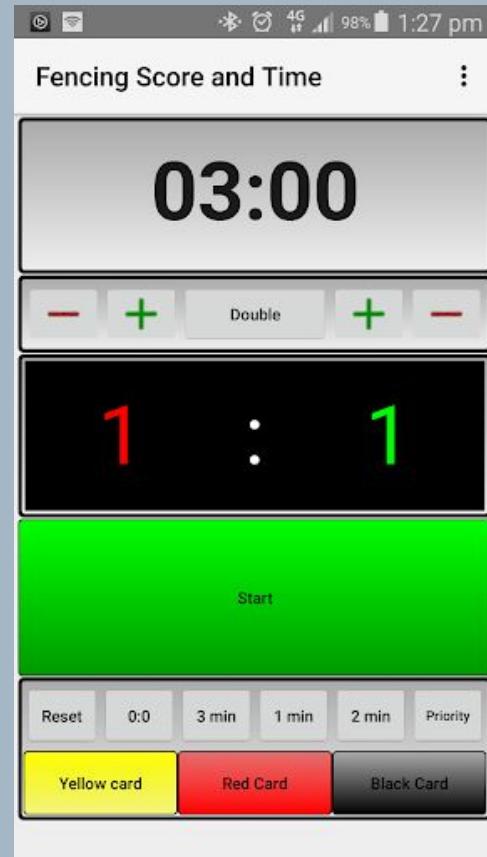
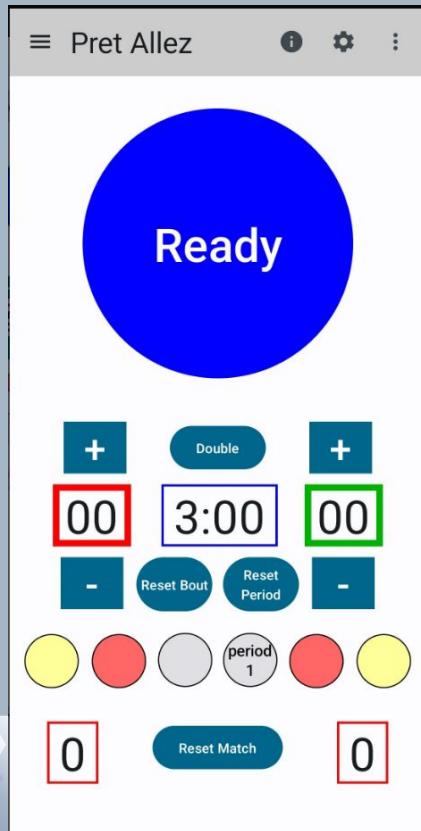
Quick check-in: Confirm Show on Show warnings Expired membership Unpaid entry fees Note present Unverified birthday

Show competitors: Absent (0) Checked-in (10) Scratched (0)

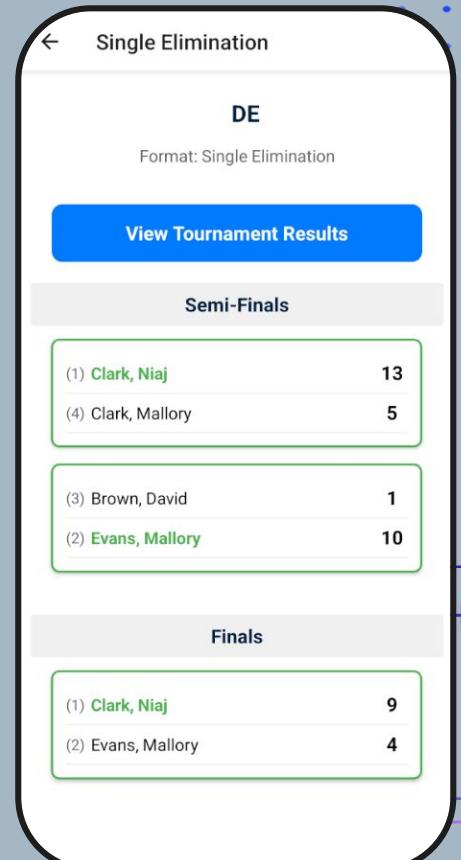
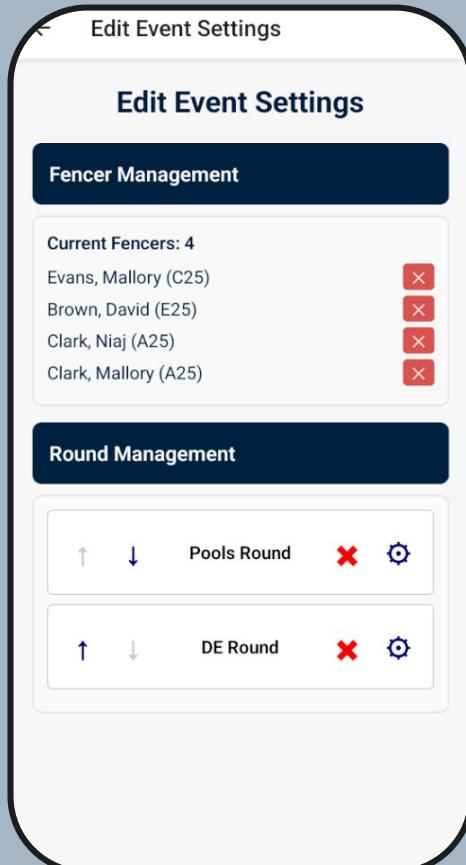
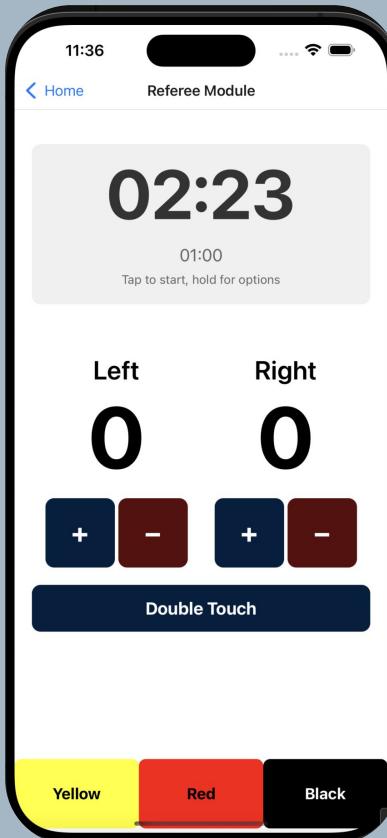
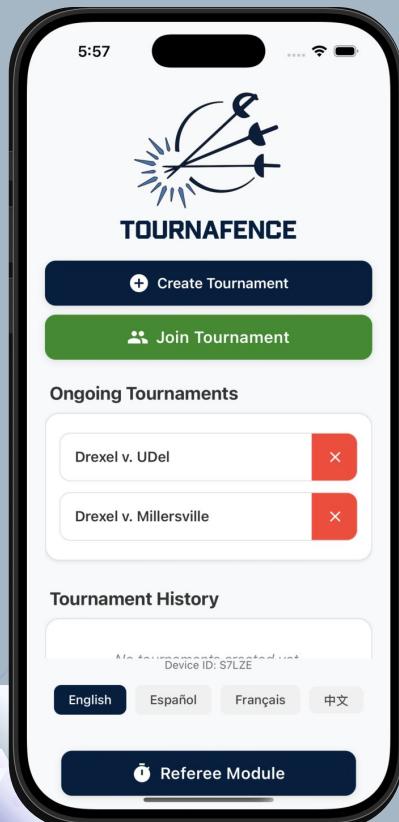
Status	Last	First	Primary Club	USFA Division	Verified	Member #	Mem Status	Notes	Class.	Born
?	Akhmedova	Kamelia	Drexel	Philadelphia		USFA #100164844			U	
?	Beauchamp	Declan	Drexel	Philadelphia					U	
?	Bishop	Avery	Drexel	Philadelphia					U	
?	Bunker	Tim	Drexel	Philadelphia					U	
?	Chiang	Sydney	Drexel	Philadelphia					U	
?	Chong	Anthony	Drexel	Philadelphia					U	
?	DiDomenico	Drew	Drexel	Philadelphia					U	
?	Dunn	Jack	Drexel	Philadelphia					U	
?	Greaves	John	Drexel	Philadelphia					U	
?	Hakberdiyeva	Vazira	Drexel	Philadelphia					U	

Check All Memberships

Other “Similar” Products



Our App

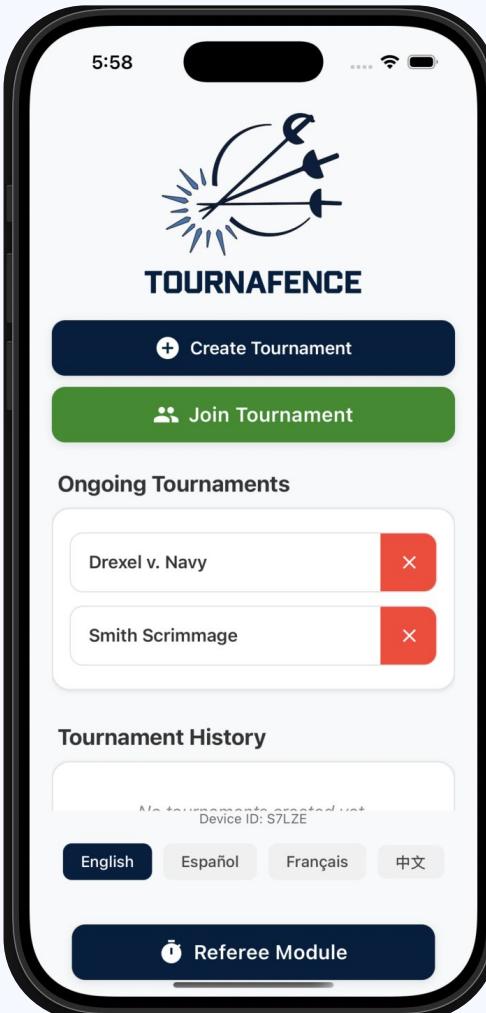


Features	<u>TournaFence</u>	Fencing Time	FencingRef	Other Referee Apps
Referee Module				
Tournament Management				
Multi User / Wireless Refs				
Sleek, Clean UI				
Scoring Box Integration				
Multi-Platform				

Our idea of Accessibility

The most important thing
for us was availability

- No user manual required
- **Self explanatory design.**
- **4 Languages Offered**





Online Tournament Up and Running In Under 2 Minutes



Edit in video of tournament creation



Our Tech Stack

Framework

React Native

React Framework for mobile apps.

The Expo platform provides an ecosystem of tools and packages to improve the development process

Backend

Embedded TCP Server

A React Native TCP server lets us have multi-user tournaments

Database

SQLite

The most popular relational embedded database.

Compatible with every popular operating system.

First-class React Native support with Expo SQLite.

Hardware

Arduino

Affordable electronics platform used in our scoring box.

Open, well documented platform with plenty of existing libraries.





Tooling

SCM
GitHub

150 commits
25 Pull Requests

UI Design
PenPot

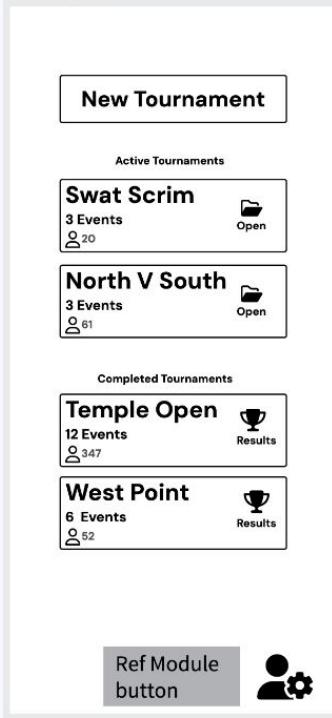
23 Screens
Designed

IDEs
VSCode
Webstorm

Git/Github
Integration

Original Designs

Home Screen



Create Event

New Event

Gender: Mixed | Men | Women

Weapon: Saber | Epee | Foil

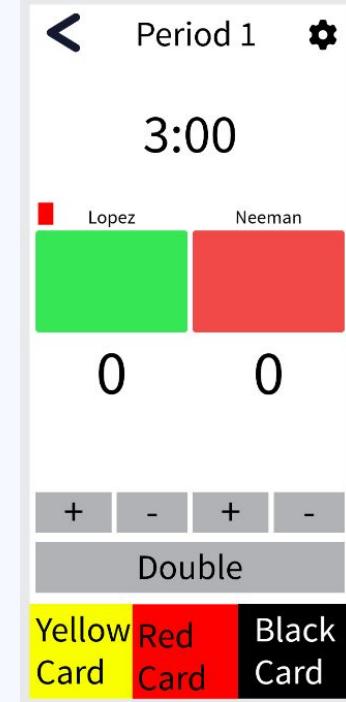
Age Classification: Senior (this is a dropdown)

Rating Classification: Open (this is a dropdown)

Seeding Method: ignore | for | now

Rounds:
= Pools (50% Promotion) | Settings | --
= Pools (100% Promotion) | Settings | --
= Direct Elimination | Settings | --

Confirm



Pools Round 1

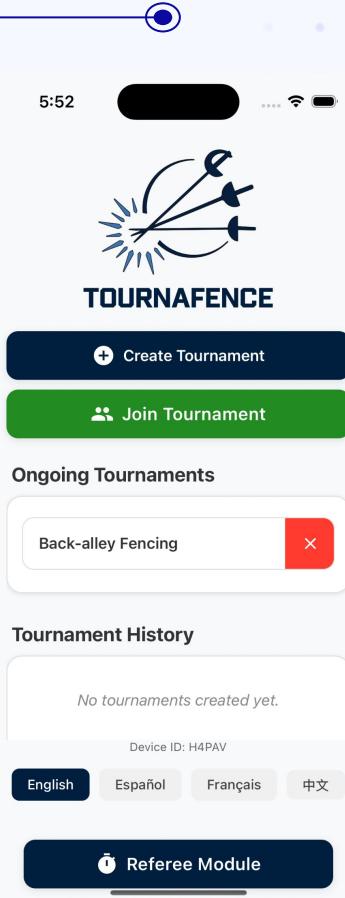
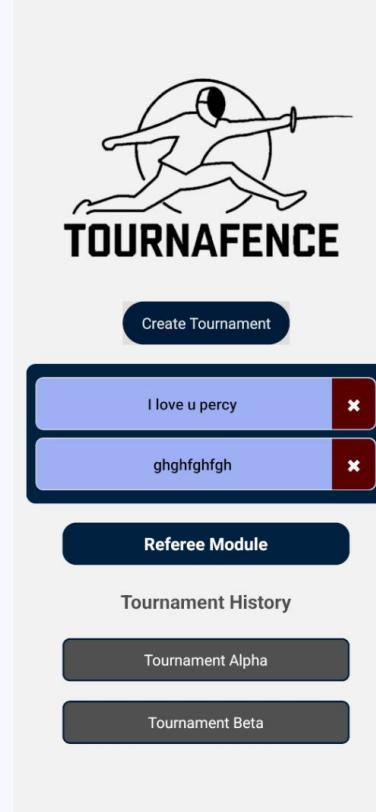
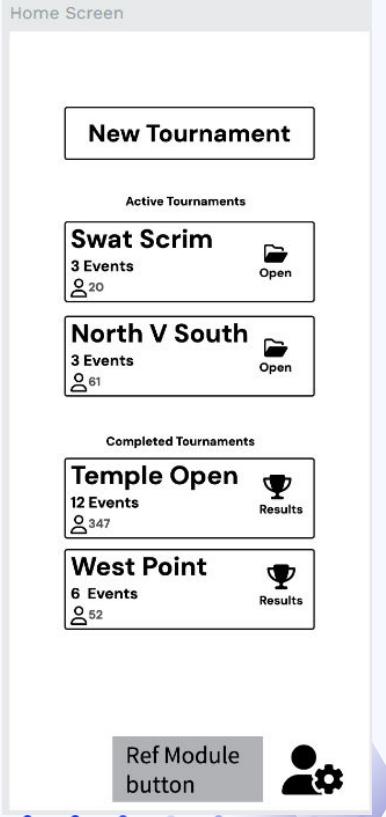
Round 1, Pool 3

Bout Order

1 SHANNON	V5	4	4 SPECTER
2 LOPEZ		3	NEEMAN
1 SHANNON		3	NEEMAN
2 LOPEZ		4	SPECTER
3 NEEMAN		4	SPECTER
1 SHANNON		2	LOPEZ

End Pool

UI Iterations



Networking Options

Client/Server

Simple, separate
server app

Peer-to-Peer

Direct device
connections



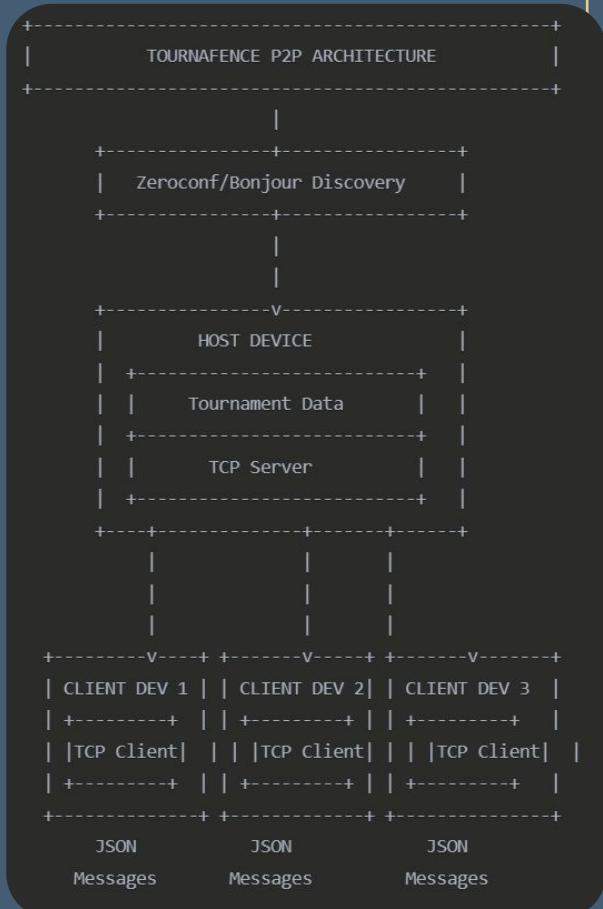
Network-Model Solution

Our Hybrid (Embedded TCP)

Zero-config “click-to-host”

Devices dynamically server/client

Simplified dev workflow



Challenges



Migrating to React

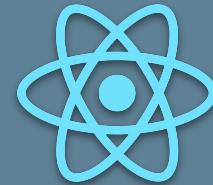


Avalonia UI

Multitude of issues

Difficulties setting up

Completely new
framework for the
whole team



React Native

Seamless transition

Worked instantly

Team had prior experience

The Engineering Aspect

Current Options

Homemade scoring box



Mass-produced box



The Engineering Aspect

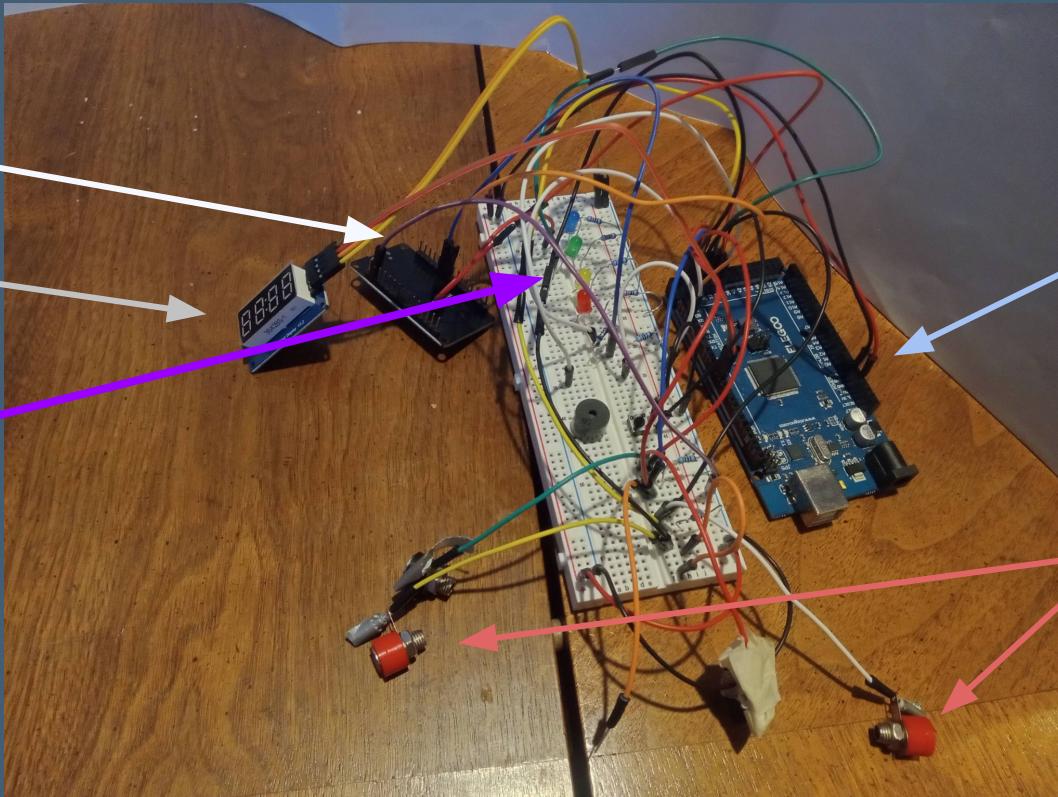
ESP32

Timer

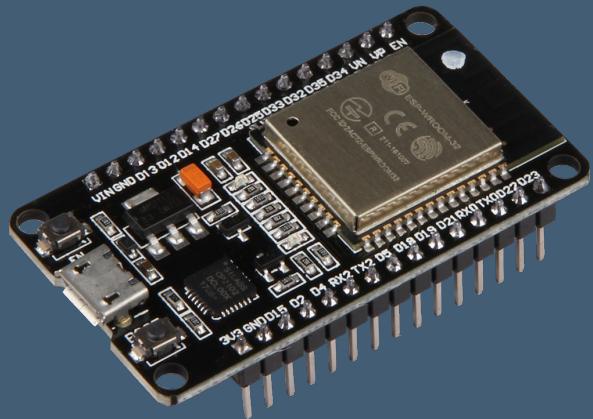
LEDs to indicate touches scored

Arduino Mega

Ports for weapon cables



The Engineering Aspect: Networking



Security

User-Facing



Device IDs are never transmitted over network

Creator

Official

Referee

Viewer

manage all

manage tournaments

read data

read data only

complete access

create events

score bouts

no scoring

holds database

can't manage officials

no management

no management

deviceId: XYZ12

deviceId: ABC45

deviceId: DEF78

no deviceId needed

CASL <Can> Component

Security

Network-Level

Development Environment

Host Device (Creator)

Tournament Database

Unencrypted TCP Server

Plain JSON

Client Device (Referee/Official)

RBAC Authentication

Unencrypted TCP Client

Device IDs for Authentication

Production Environment

Host Device (Creator)

Tournament Database

TLS Encrypted TCP Server

Encrypted JSON

Client Device (Referee/Official)

RBAC Authentication

TLS Encrypted TCP Client

Sensitive Data Protected

Project Management

Tournafence ★ Public Board

Calendar Power-Up Power-Ups Automation Filters BN LR TR

Questions For Next Meeting

- Check slides for cover of rubric
- Localization setup needs to be discussed
- Progress on unit testing
- What is the final test plan
- Speaking amounts per teammate

+ Add a card

To Do

- Notifications for BoutOrderPage (Apr 30)
- Get Logo (BN)
- Final SDD (Jun 7)
- Final Presentation (May 21)
- UI cleanup (Jun 7)

+ Add a card

In progress

- French Translations (Apr 30)
- Unit Testing/code coverage (May 2)
- Presentation work (1)
- Direct Elimination Fixes (T)
- CSV file reader (LR)
- IP address to QR code (May 29)

+ Add a card

Blocked

- Code Coverage slide (Apr 30)
- Unit Testing slide (May 8)
- Other testing slide (May 29)

+ Add a card

Done

- Create Testing (May 11)
- Rubric for presentation (TR)
- Remote Server functionality (May 13)
- Logo creation (Jul 3)

+ Add a card

Ticketing

CSV Import for Fencer Management

in list IN PROGRESS

Members Labels Notifications Due date

BN + Priority + @ Watching May 1, 5:23 PM

Description

In Fencer Management, add a button below Add Fencer that allows for a csv upload.

FirstName, Lastname, Age, Rating is accepted format

Activity

Show details

BN Write a comment...

ben neeman just now Ruchika couldnt make progress, follow up soon

BN Edit Delete

ben neeman added this card to In progress 1 hour ago

Leave

Members

Labels

Checklist

Dates

Attachment

Cover

Custom Fields

Power-Ups

+ Add Power-Ups

Automation

+ Add button

Labels

Search labels...

Labels

Medium importance

Bug Fix

Priority

Design/UI

Presentation

Networking

Easy

Create a new label

Discord

The image shows a screenshot of the Discord application interface. On the left is a sidebar with a dark background and light-colored text, listing various channels under categories like "Events", "Text Channels", "Code Chats", "Project Chats", and "Voice Channels". The "Text Channels" section includes channels such as "# general", "# meeting-notes" (which is highlighted with a yellow border), "# scheduling", "# dev-updates", "# bug-chat", and "# new-feature-brainstorming". Below these are "Project Chats" like "# presentation-slides", "# documentation-updates", "# srs-review", and "# testing-plan-methods". The "Voice Channels" section lists "# Weekly Standup". On the right is the main chat window for the "# meeting-notes" channel. The channel header shows the name "# meeting-notes" and some icons. The message list starts with a pinned message from "Luka" dated April 21, 2025, at 6:52 PM, which reads: "In person poster presentation (May 28th): • Can do a live demo". Below this is another message from "Luka": "Deliverables for this Quarter: • Weekly schedule • Final SDD • Final Test Plan • Implementation (code base - share GitHub with him) send build instructions / precompiled binary". A small note "(edited)" is visible next to this message. At the bottom of the message list is a timestamp "April 21, 2025". Further down, there are messages from "Luka" and "Luka" again, both dated April 21, 2025, at 6:52 PM, discussing testing plans and alternate designs.

Fencing Senior Design ▾

Events

Text Channels ▾ +

general

meeting-notes

scheduling

Code Chats ▾ +

dev-updates

bug-chat

new-feature-brainstorming

Project Chats ▾ +

presentation-slides

documentation-updates

srs-review

testing-plan-methods

Voice Channels ▾ +

Weekly Standup

meeting-notes

In person poster presentation (May 28th):

- Can do a live demo

Deliverables for this Quarter:

- Weekly schedule
- Final SDD
- Final Test Plan
- Implementation (code base - share GitHub with him) send build instructions / precompiled binary

(edited)

April 21, 2025

Luka 4/21/2025 6:52 PM

Recorded presentation: not everyone has to talk

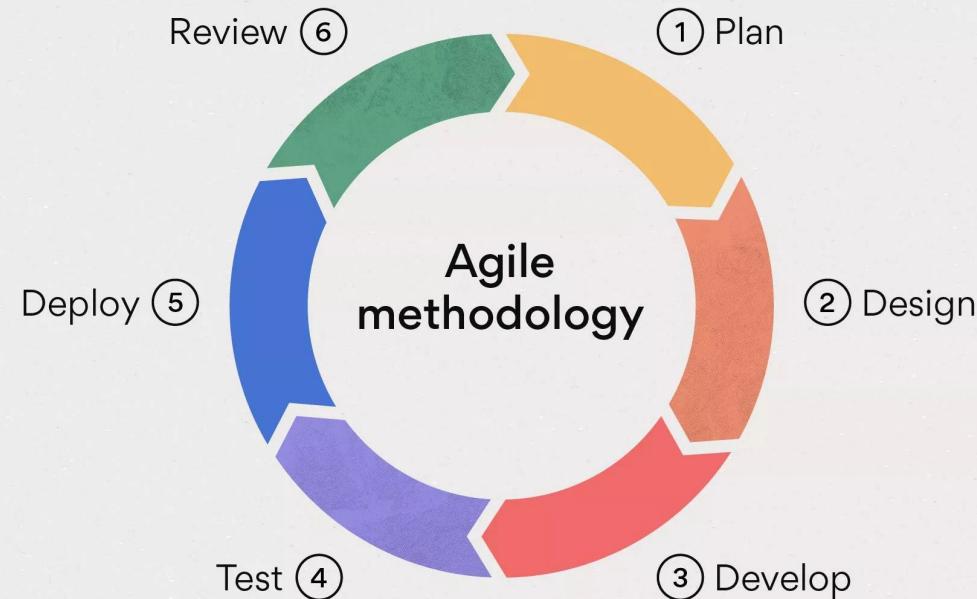
Testing plan is USER TESTING, assuming integration and unit tests are working

Alternate design:
Alternate UI designs are good, but also different architectural designs
(tooling, networking architecture, C# -> React)

System Design Doc slide (question 19): Don't need it. Anything in green is stuff we don't need

Slide on Agile: Don't say we're agile if we aren't strictly agile. Trello board is good, GitHub for SCM. Say what part of agile we used, and be honest about

Project Management (Agile-esque)



asana

How we made it work

01. Assigned a Scrum Master (Ben)
02. Weekly Standup Meeting
03. Discussed blockers and assigned work to each member
04. Check ins on discord throughout the week

Testing Strategies

01



Unit Tests

Line by Line
validation

02



End-to-End Tests

UI flow tests
and interface
responsiveness

03



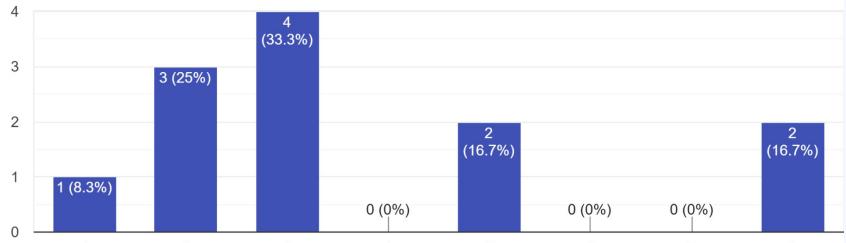
Beta Testing

Real fencers,
real feedback

Data Gathered

Years Fencing

12 responses

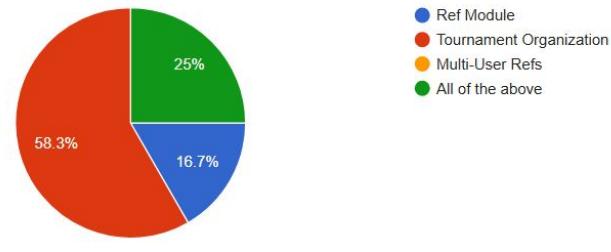


Which part of app needs the most refinement

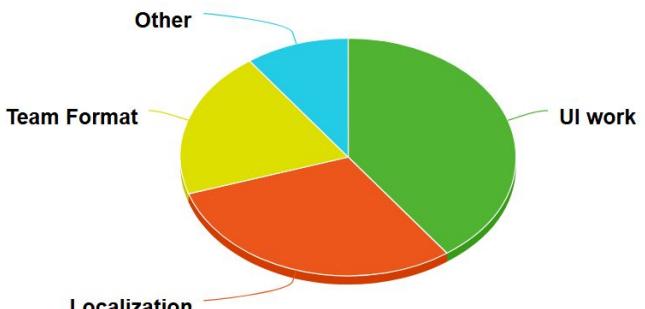
12 responses



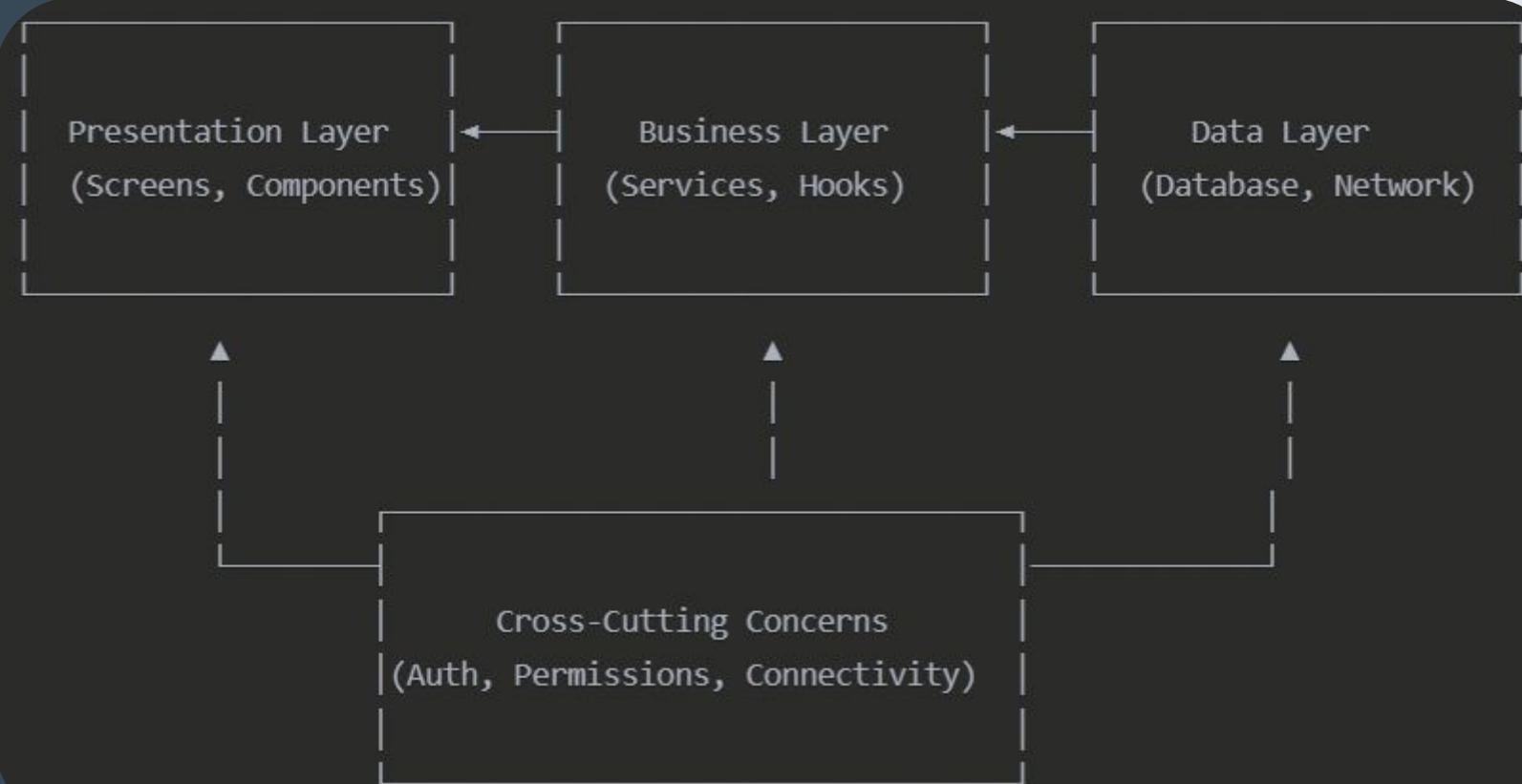
Favorite part of app



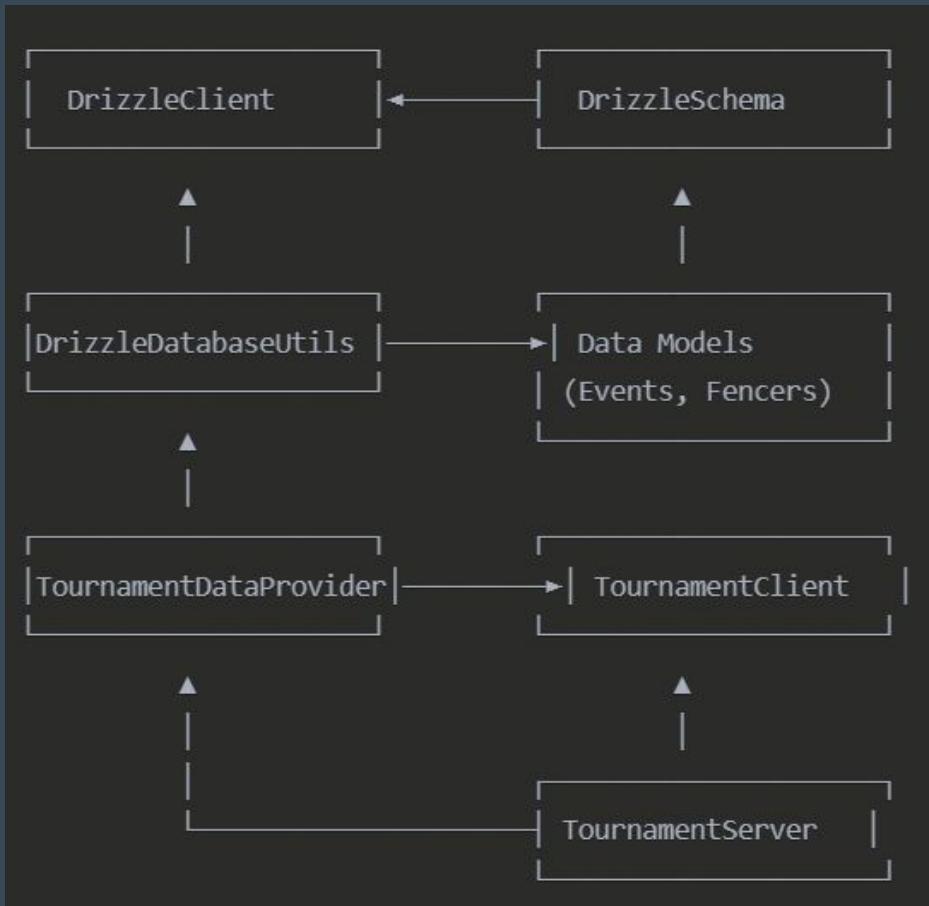
Most Wanted Features



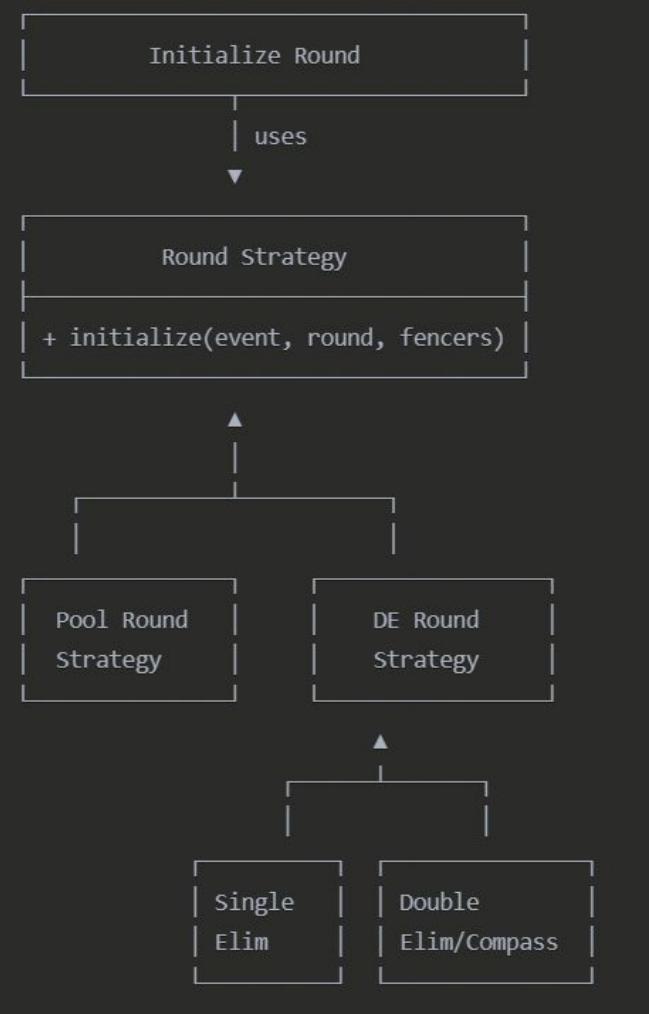
High Level Overview



Database



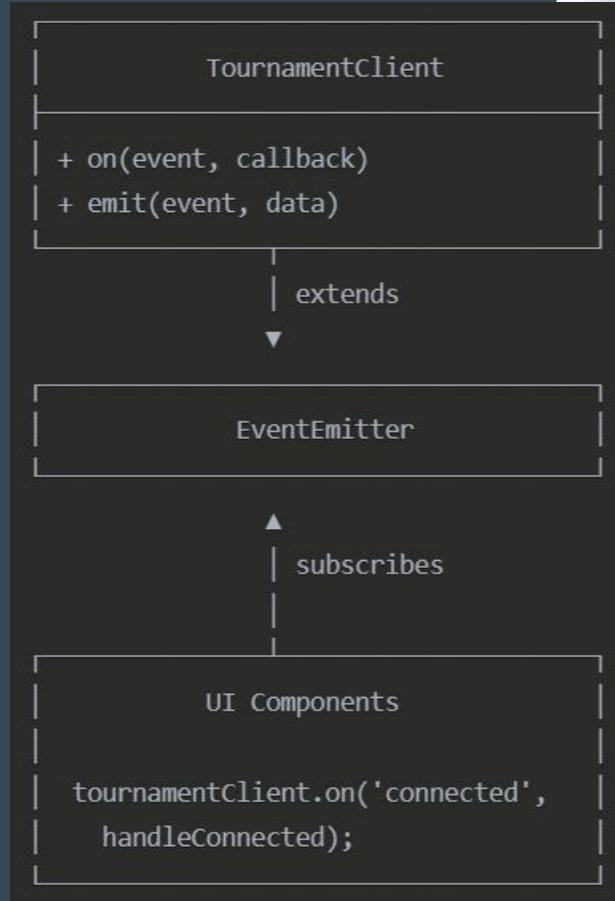
Design Patterns Used



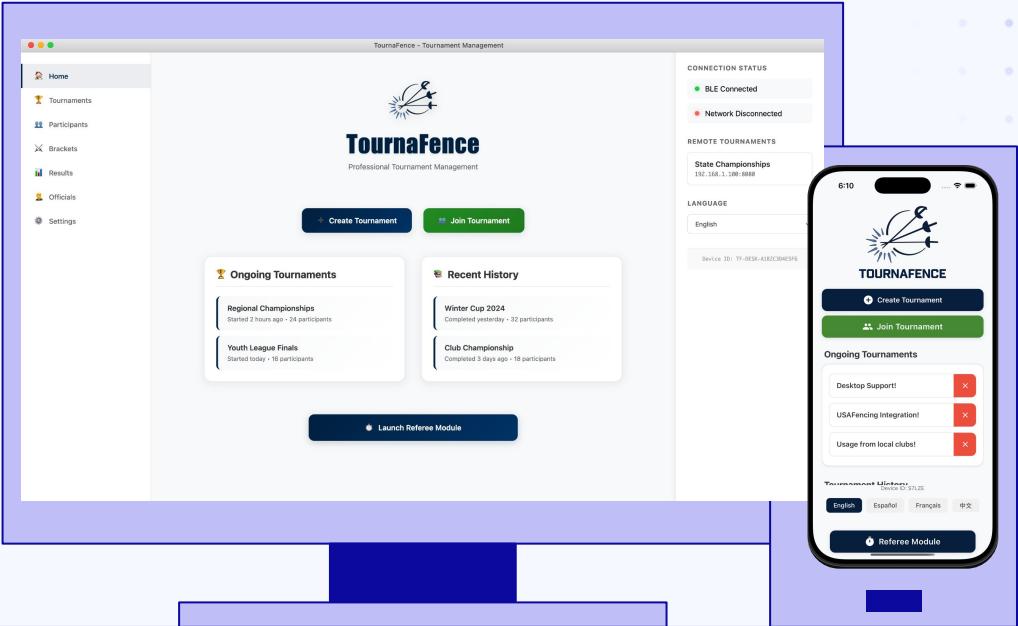
01. Interchangeable
02. Open/Close
03. Modular
04. Easy to expand

Data to Display

01. Backend Signals
02. Frontend Listens
03. Loose Coupling
04. Realtime Updates
05. Clean Separation
06. Reactive UI
07. Scalable Design



Future Plans



Endorsements

“This has some serious potential” -

USA Collegiate Fencing Club Board Member

Company

“TournaFence is something I’ve been wanting for a long time” -

Junior Olympian

**That's all
folks**

