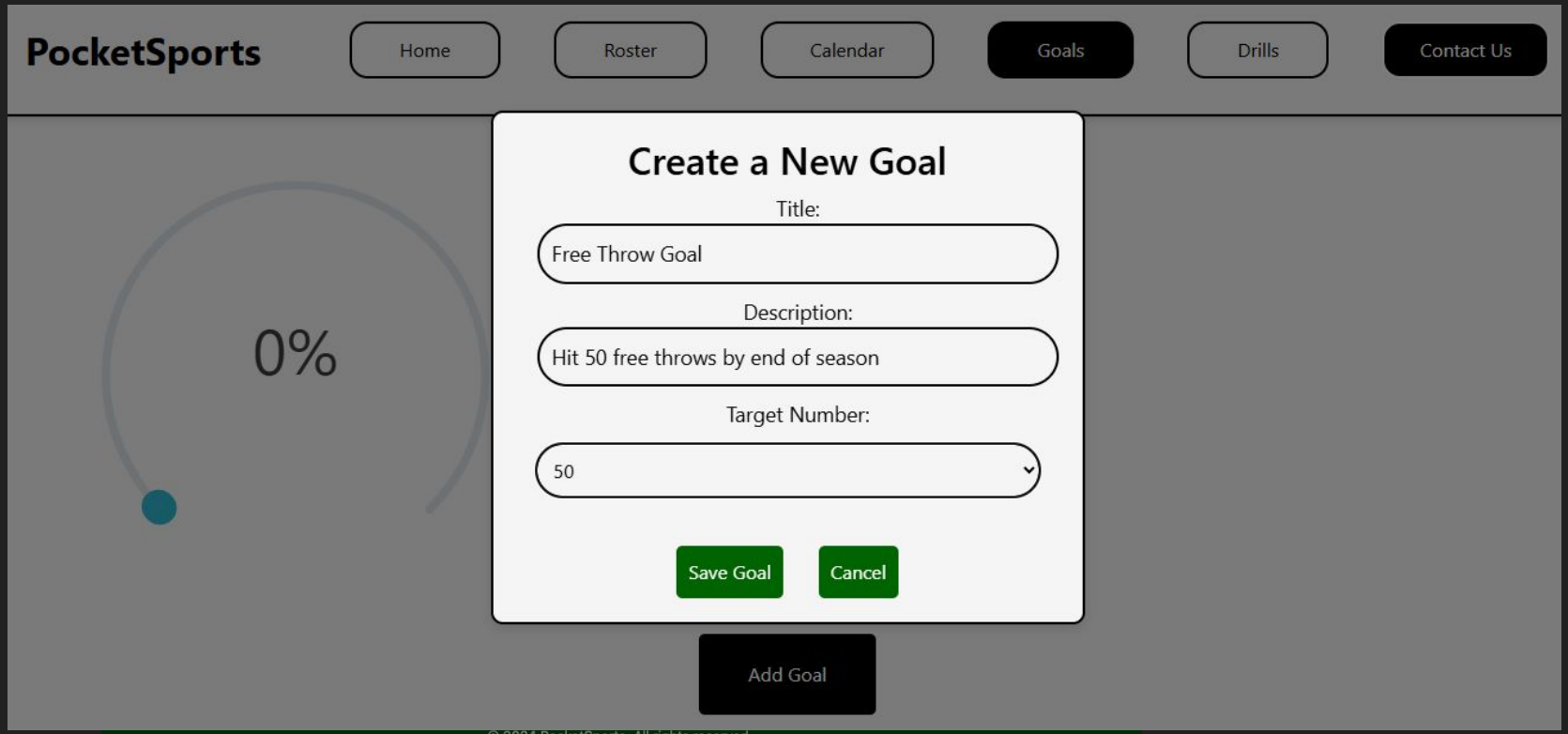
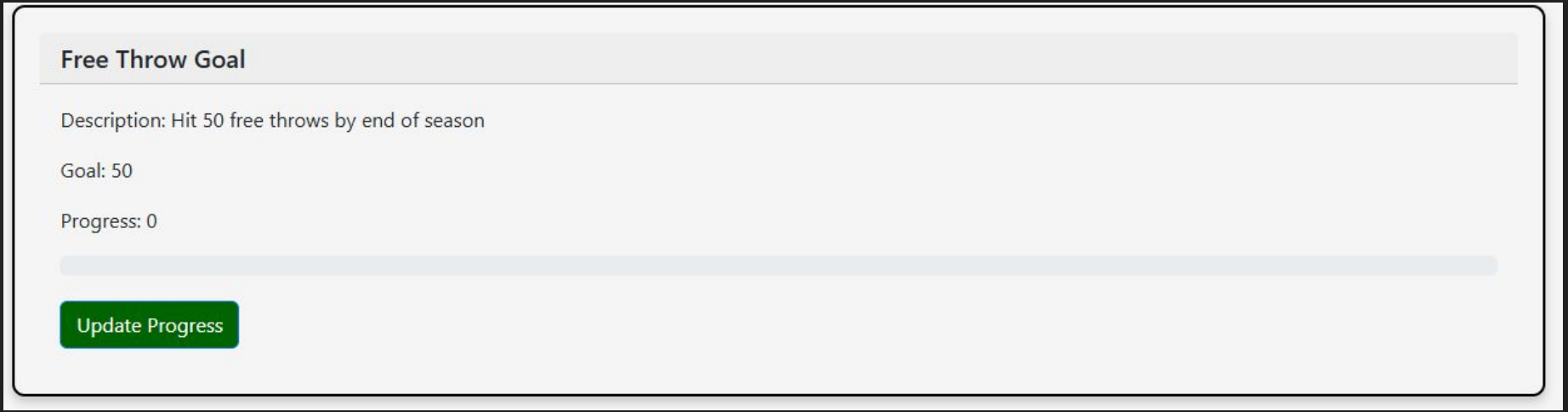
Pocket Sports

Taylor Carlson, Garrett Gmeiner, Tyler Ton, Parker Cummings

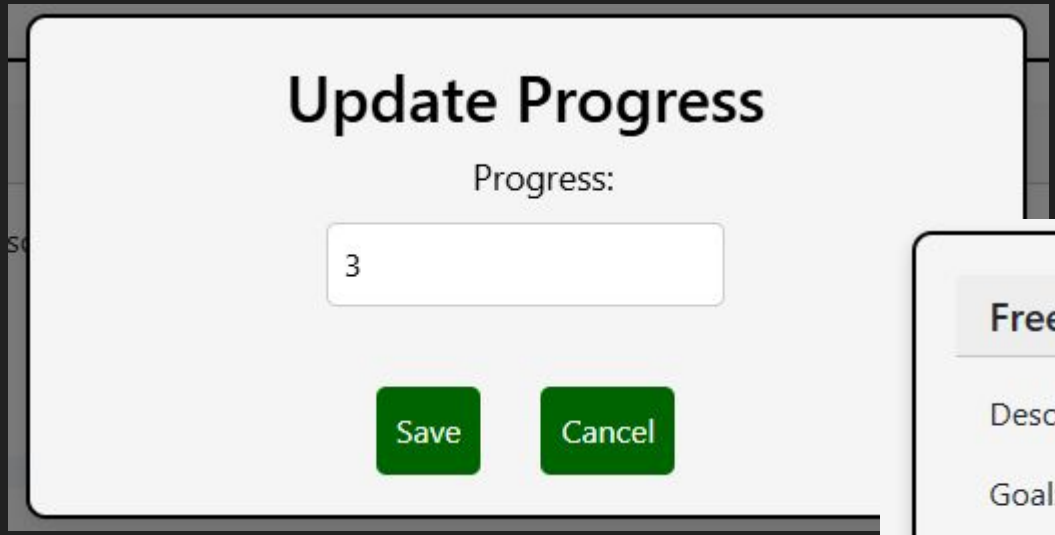
Goal Page - New Goal Feature

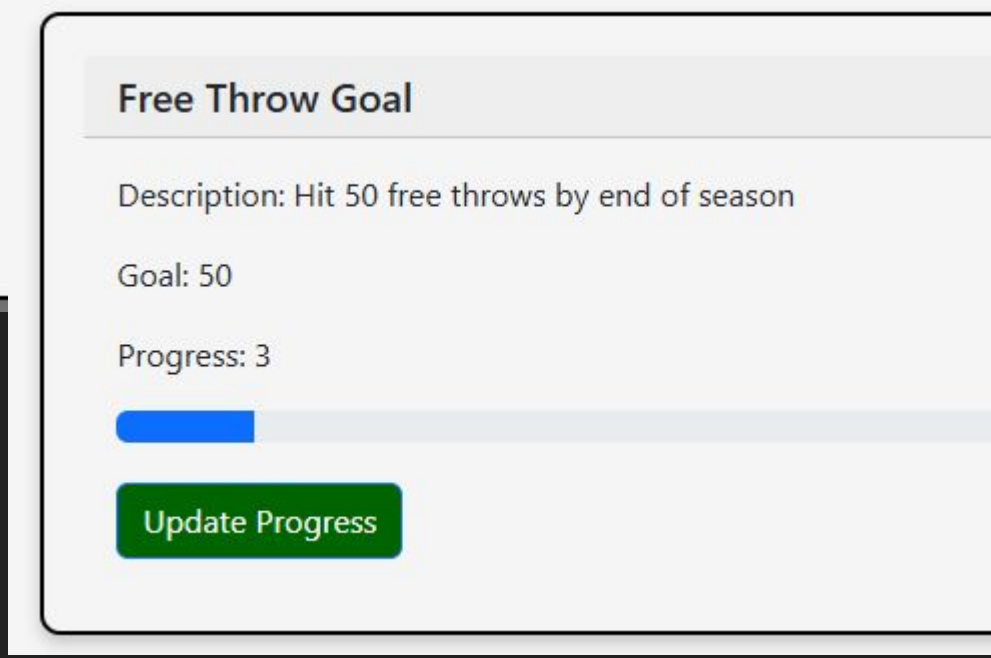


Goal Page Card

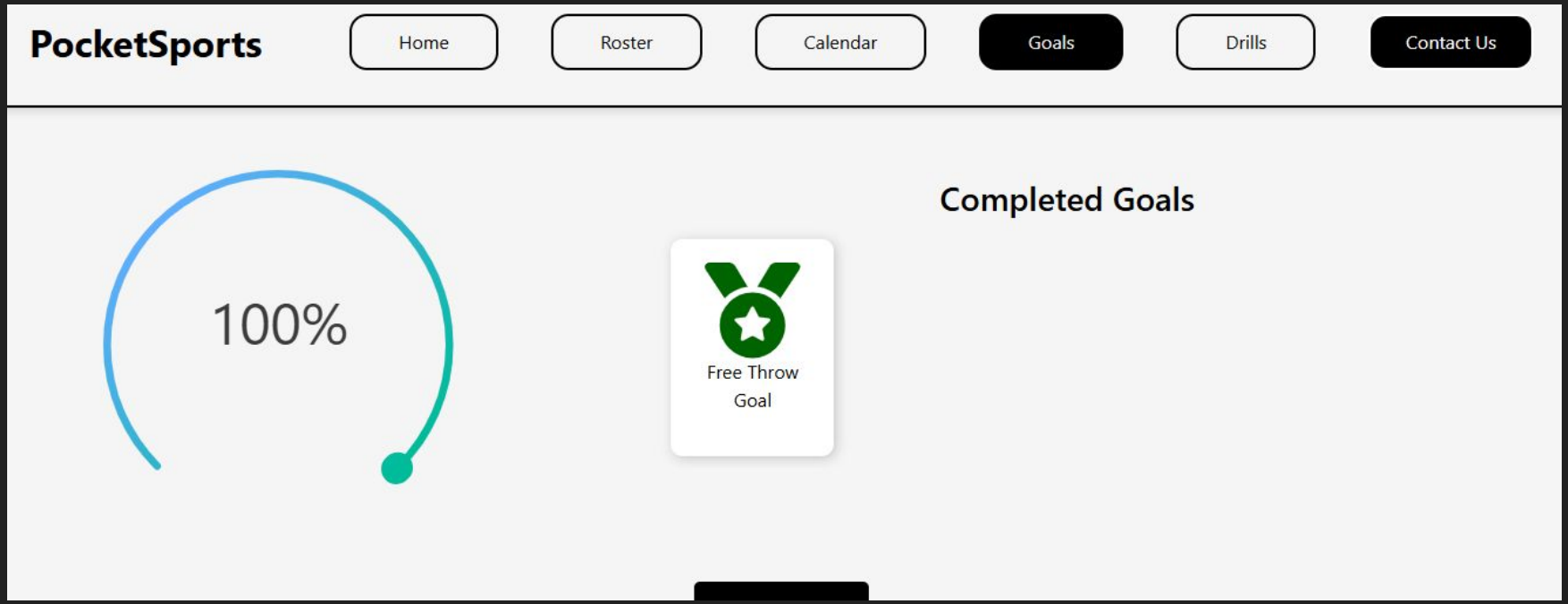


Goal page - Update Progress Button



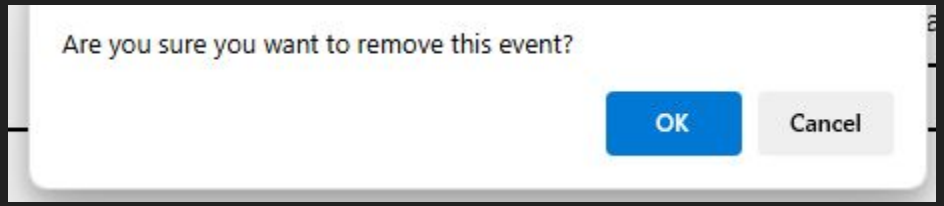


Goal Page - Badges



Calendar Page - Create Event Feature

Calendar Page



« ‹ March 2025 › »

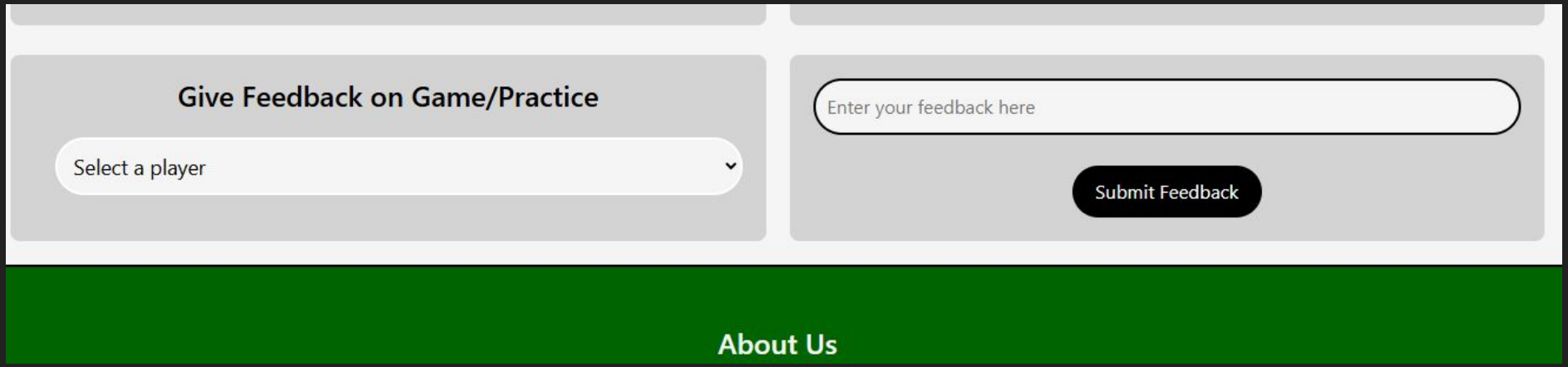
24	25	26	27	28	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6

Events for Mon Mar 24 2025

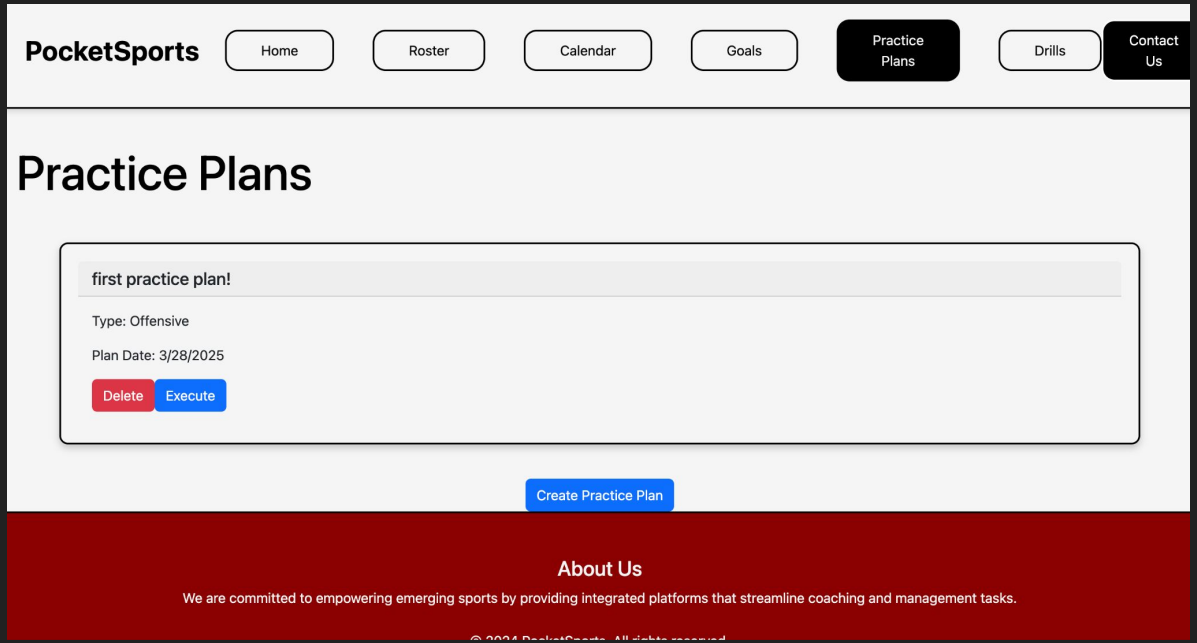
Monday Practice

Calendar Page - Event Details and List of Drills

Calendar Page - Feedback Feature

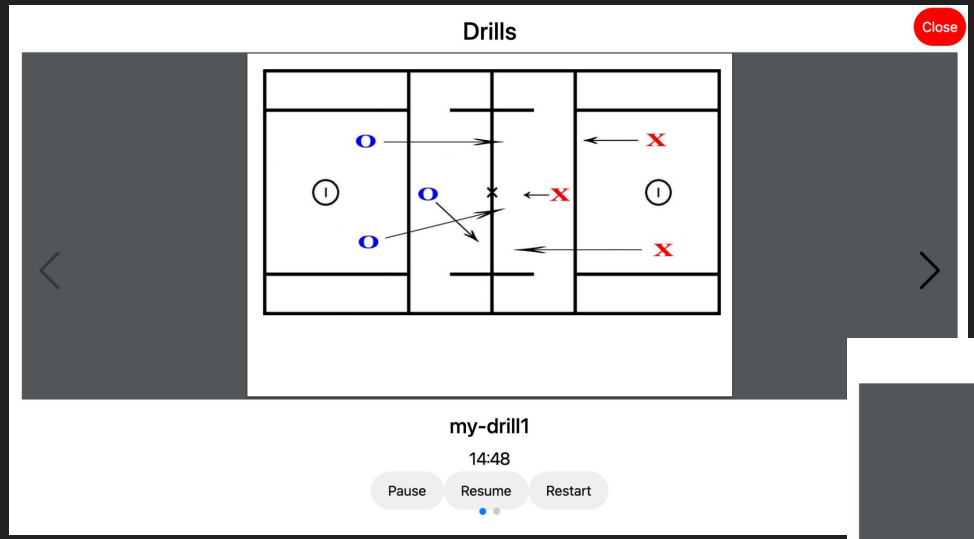


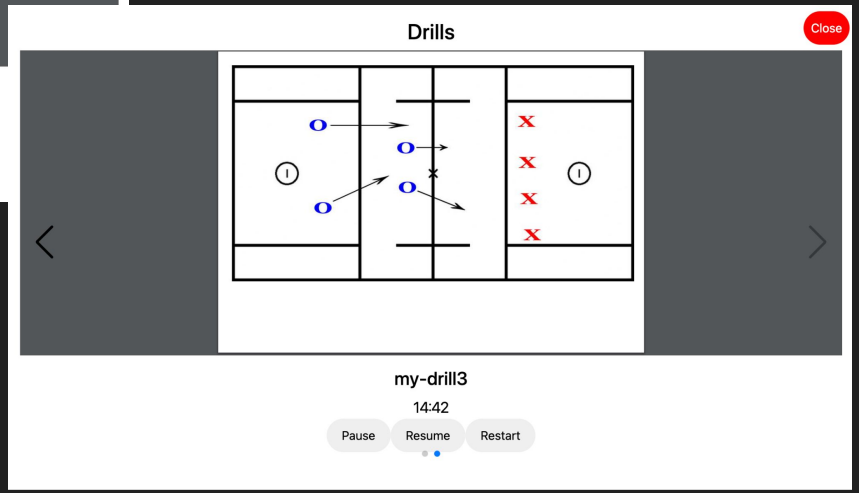
Create practice plan feature



Create practice plan cont’d

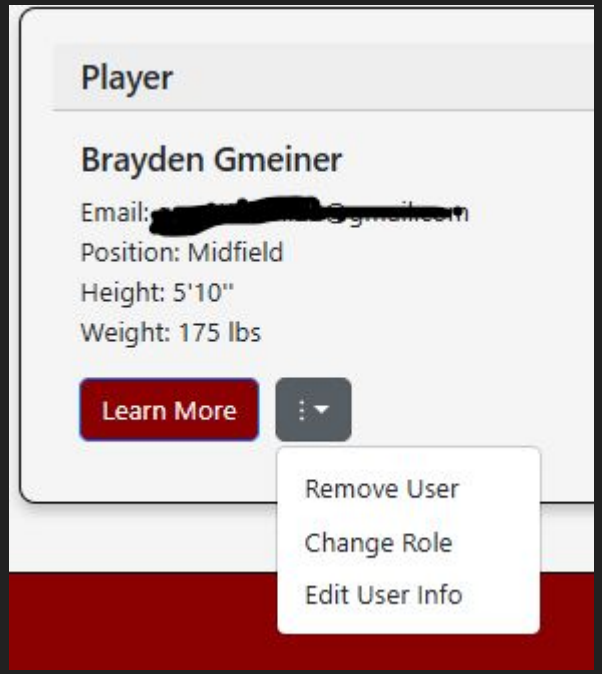
Execute practice plan feature

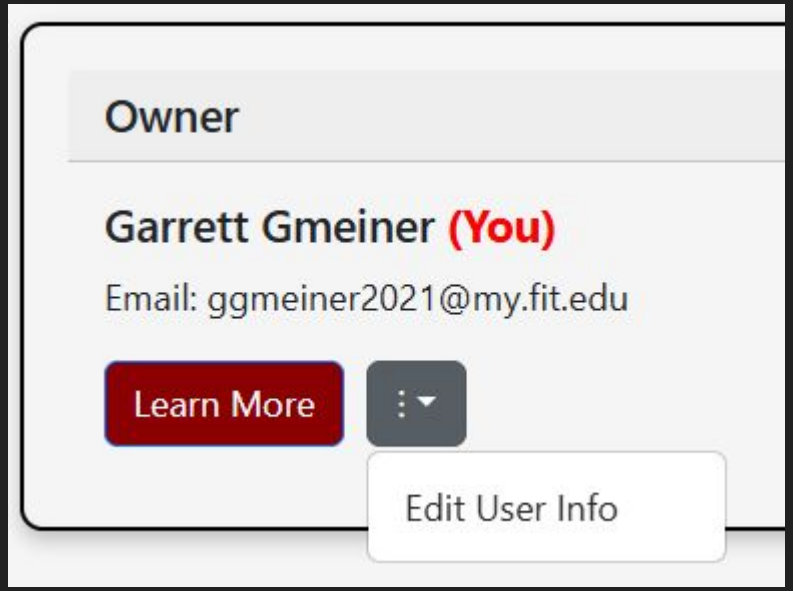




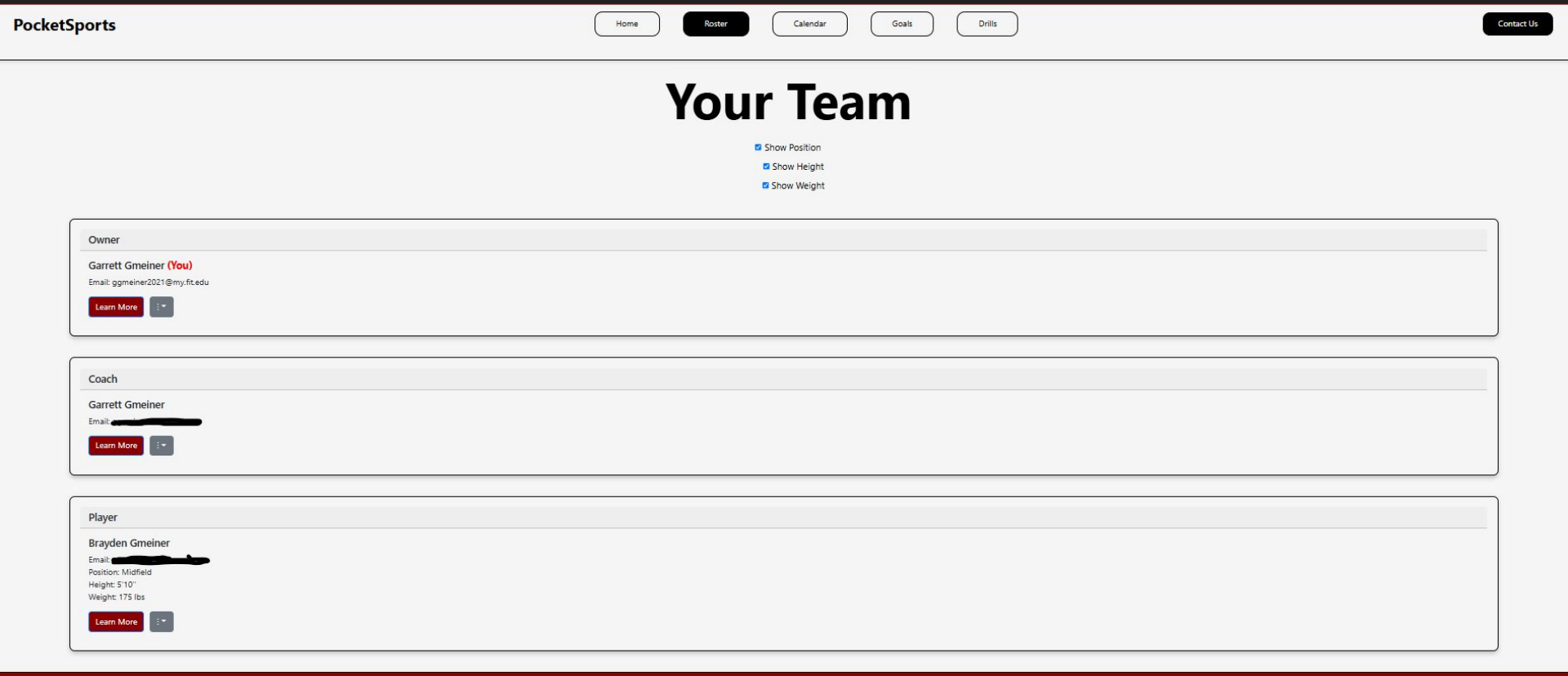
Video Demonstration

Roster user removal





Revamped Roster Page



Your Team

- [x] Show Position
- [ ] Show Height
- [ ] Show Weight

Owner

Garrett Gmeiner (You)

Email: ggmeiner2021@my.fit.edu

Learn More

Coach

Garrett Gmeiner

Email: [redacted]

Learn More

Player

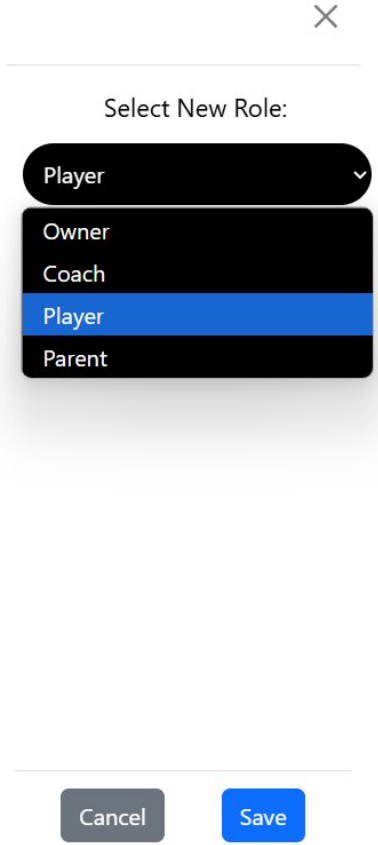
Brayden Gmeiner

Email: [redacted]

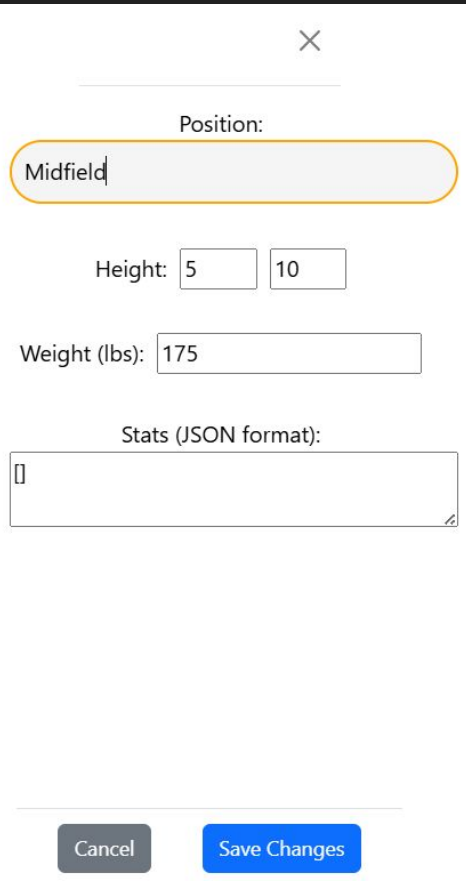
Position: Midfield

Learn More

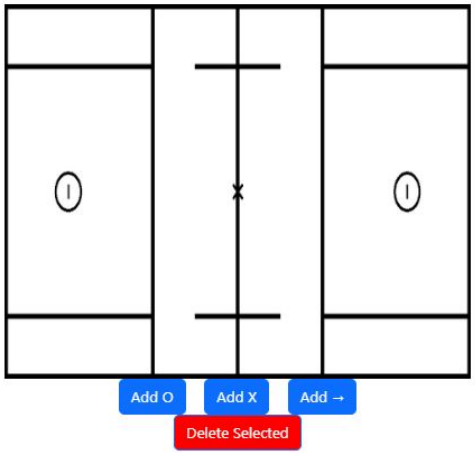
Change User Role



Edit User


Position:
Midfield
Height:
5
10
Weight (lbs):
175
Stats (JSON format):
[]
Cancel
Save Changes

Drill Tags



Drill Name:

Drill Name:

Enter the drill's name

-- Select an Existing Tag --

Enter a new tag

Add Drill Tag

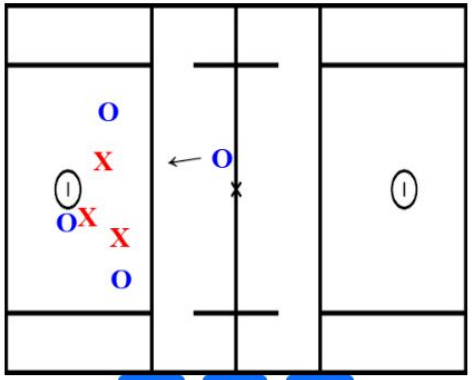
Selected Tags:

No tags selected.

Save Drill

Close

Drill Tags



-- Select an Existing Tag --
matchups
test1
test2
tagtester
Transition

Drill Name:

fast break

-- Select an Existing Tag --

Enter a new tag

Add Drill Tag

Selected Tags:

Transition x

Save Drill

Close

Create E-book page/Poster

NORTHROP GRUMMAN
ENGINEERING & SCIENCE
STUDENT DESIGN SHOWCASE
FLORIDA TECH

PocketSports: The Digital Coaching App

Garrett Gmeiner, Taylor Carlson, Tyler Ton, and Parker Cummings
Faculty Advisor(s): Dr. Fitzroy Nembhard, Dept. of Electrical Engineering and Computer Science, Florida Institute of Technology

Abstract:

Lots of apps only focus on one end of coaching. PocketSports aims to eliminate the need for multiple apps by delivering a cross-sport app with an increased app functionality

Coaches can…
1. Set and Track Goals
2. Design Practice Plans
3. Execute and Analyze Practice Plans

Players can…
1. Create Goals and Monitor Progress
2. View Practice Plans
3. Review Practice Results

System Architecture:

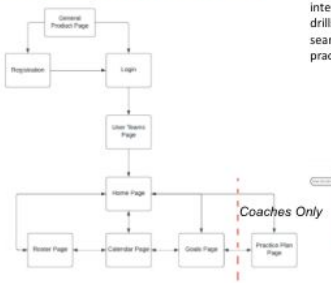


Figure 1: System Architecture

Methods:

- MERN Stack Implementation: Using MongoDB for data persistence, Express and Node.js for server-side logic, and React for the front end, ensuring a modular, scalable architecture.
- Real-Time Features: Employing websockets to allow coaches to collaboratively design and execute practice plans, track live drill times, and update player stats on the fly.
- Data Visualization: Integrating libraries such as Chart.js to display progress toward goals and performance metrics, enabling coaches and players to monitor improvements visually.
- Role-Based Access: Implementing secure login flows and role-specific dashboards for owners, coaches, players, and parents, ensuring that each user only sees data relevant to their role.
- Goal Setting & Practice Planning: Providing interactive design tools for creating animated drills, storing them in a library, and seamlessly integrating them into daily practice schedules.

Acknowledgements:

Brad MacArthur, Men's Lacrosse
Jordan WIllis, Women's Volleyball
Michaela Gelbaugh, Women's Basketball

Tools Used:

- GitHub: We used GitHub as our code repository, to conduct code reviews, and host the website
- Git: We used Git as an intermediate with local and remote branches and to push our work to GitHub.
- Jira: We used Jira for project management
- Node: We used Node as the application's server environment
- MongoDB: We used MongoDB for the application's database
- Google Docs/Slides: We used Google Docs/Slides for document collaboration
- HTML: We used HTML for creating the webpage's structure
- JavaScript: We used JavaScript for creating the webpage's functionality
- CSS: We used CSS for creating the webpage's styling

Limitations and Improvements:

- Limitations
  - Drill libraries and performance metrics are currently basic
  - Partial offline functionality still relies on stable network access for optimal data sync
  - Lack of advanced AI-driven analytics for personalized training recommendations
- Improvements
  - Expand sports-specific drill libraries for broader coverage
  - Enhance offline modes with robust caching and synchronization
  - Integrate AI/ML capabilities to deliver more customized and data-driven coaching insights

[EECS]

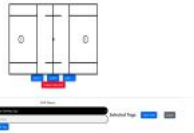
Project Name **PocketSports: The Digital Coaching App**
Team Lead: Garrett Gmeiner
Team Member(s): Taylor Carlson, Tyler Ton, Parker Cummings
Faculty Advisor(s): Dr. Fitzroy Nembhard, Dept. of Electrical Engineering and Computer Science, Florida Institute of Technology

Project Description:
PocketSport: The Digital Coaching App is a comprehensive web-based solution designed to streamline and enhance coaching tasks for multiple sports. It combines drill and practice-plan creation, goal-setting, scheduling, and real-time performance tracking into a single, user-friendly platform that is affordable, scalable, and accessible to coaches, players, parents, and team owners. By consolidating functionalities that traditionally require several disconnected tools, PocketSport reduces operational complexity and promotes more efficient communication and engagement across teams.

Design Problem Statement:
Existing sports coaching solutions often focus on narrow areas, such as drill sketching or stat tracking, forcing teams to juggle multiple applications. This is especially burdensome for smaller or emerging sports programs that need a single platform to plan practices, set goals, track performance, and maintain accessible records. PocketSport addresses these gaps by offering an all-in-one digital coaching solution that is both cost-effective and configurable to multiple sports.

Major Challenges:
Major challenges include designing multi-sport interfaces with customizable drills and animations, and implementing real-time collaboration (e.g., websockets) for simultaneous practice-plan creation. The system must also handle offline data syncing, maintain a clean, scalable UI with robust security, and support performance tracking through the secure collection and visualization of individual and team data.

Solution Methods:
PocketSport is built on a MERN stack (MongoDB, Express, React, Node.js) for modular design and scalability. Real-time collaboration is achieved through websockets for shared drill creation and practice execution. Role-based dashboards and charting libraries ensure secure, visual performance tracking.



Data Analysis:
PocketSport collects and stores user-entered stats (e.g., shots, goals, reps, time spent on drills) in a centralized database, allowing historical performance tracking. Coaches can generate visual insights, through charts, progress bars, and goal completion metrics, helping teams identify strengths, weaknesses, and overall trends. Eventually, these statistics could inform advanced analytics or AI-driven recommendations for drill selection and goal setting.

Summary Sentence:
PocketSport is an all-in-one digital coaching platform that consolidates practice planning, performance analytics, and goal tracking into a single, user-friendly application, empowering teams of any size or sport to efficiently manage and elevate their training experience.

Next Milestones

Milestone 6:

- Add feedback feature
- System-wide testing and bug fixes
- Create User/Dev manual
- Create Demo Video
- Add stats of interest to drills
- Create Contact Us form

Milestone 6

Task	Tyler Ton	Taylor Carlson	Parker Cummings	Garrett Gmeiner
Add feedback feature	0%	50%	50%	0%
System-wide testing and bug fixes	50%	25%	25%	0%
Create User/Dev manual	25%	25%	25%	25%
Create Demo Video	0%	0%	0%	100%
Add stats of interest to drills	100%	0%	0%	0%
Create Contact Us form	0%	0%	0%	100%

Faculty Advisor Feedback

Questions?