

# PLAYBOOK

## Early UX Research for AR in Collegiate Sports

OVER  
**250K**  
PROJECT FUNDS  
AWARDED

POSITIONED  
PLATFORM FOR  
MULTI-SPORT  
EXPANSION



"WE ALL WANT TO BE SPEAKING THE  
SAME LANGUAGE AND READING OUT  
OF THE SAME BOOK."  
- HEAD ATHLETIC TRAINER

6

ETHNOGRAPHY  
INTERVIEWS  
CONDUCTED

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INTERVIEW  
QUESTIONNAIRES  
INSIDE

# WHY THIS RESEARCH?

This project shows how early UX research can prevent teams from building the wrong solution, even when that solution is technically exciting.

## The Problem

Athletic staff were managing performance, injury risk, and training decisions across fragmented tools and manual workflows. This created delays, misalignment, and increased injury risk.

## The Risk

Building AR solutions without validating workflows, constraints, and readiness could waste budget and fail adoption.



## Overview

This project is an AR-based training system developed by the Georgia Tech Research Institute (GTRI) in collaboration with the Georgia Tech Athletics Association (GTAA). It enhances athletic performance through real-time data visualization, supporting smarter decision-making and reducing injury risk.

## Goals

- Identify user needs and pain points in current training workflows
- Evaluate AR/VR technologies for comfort, usability, and feasibility
- Develop a user-centered vision for an integrated AR training system
- Ensure ethical compliance through Institutional Review Board (IRB) coordination

# INTRODUCTION



## My Responsibility

I led early-stage research to determine whether AR was viable, what problems it should solve, and what needed to exist before AR could succeed.

## Role

UX Researcher, IRB Coordinator

## Duration

Stage 0-1 Research  
4 sprints completed

## Team Roster

1. Project Manager
2. VR-AR-XR Technologist, Systems Architect, and Communications Engineer
3. Institutional Review Board (IRB) Lead, UX Design, and Wearables
4. Gaming Integration and Systems Engineer
5. Software Engineer and Application Assessment

ALEXIS

# PROJECT STRUCTURE



## Technology Evaluation

Compared Microsoft HoloLens 2 and Meta Quest 3 for comfort, usability, and known users' needs. (Kano Analysis)

## Strategic Recommendation

Advocated for AR over VR based on stakeholders' feedback, users' needs, and environmental constraints.

## IRB Coordination

Led efforts to ensure ethical compliance for human-centered research.

## SWOT Analysis

Identified strengths, weaknesses, opportunities, and threats related to hardware, data integration, and stakeholder alignment.

# RESEARCH APPROACH

Stage 0- 0.5

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# SWOT ANALYSIS

## Access Unlocked

Through our consistent focus on end-user needs, from recommending AR over VR to conducting Kano and SWOT analyses and securing IRB approval in advance, GTAA leadership permitted me to begin interviews with football coaches and support staff.

### Strength → Allowed faster buy-in

- Diverse team experience and skillset
- Direct access and full support of GTAA
- Easier implementation and lower budget than VR
- Cross-domain athletic platform development

### Weakness → Created adoption risk

- Missing tangible assets such as athletic sensors, devices/platforms/data
- Weaknesses in cybersecurity, data storage, and communication between researchers and the athletics department
- Needed upgrades in AR/VR hardware

### Opportunity → Enabled scalable expansion

- Expansion into other sports
- Ability to deliver what stakeholders specifically requested
- Incorporating human factors and AI elements

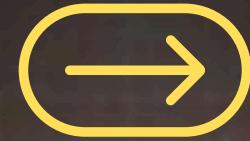
### Threat → Required timeline mitigation

- Scheduling impacts related to IRB
- Dependency on a single manufacturer for AR glasses



# PI ALEXIS

# ETHNOGRAPHIC INTERVIEWS



## Method

- Conducted interviews with six (6) GTAA staff members
- Each interview was audio recorded (with consent)
- Designed overlapping questions to uncover daily, weekly, and seasonal routines to gain various perspectives on how the participants worked as a team or individually.
- Introduced AR topics at the end to ease tension and encouraged openness among participants who were hesitant or less interested in technology.
- Closed each session with a referral to build trust and strengthen recruitment relevance. This also doubled as my recruitment process.
- After each interview:
  - Reviewed existing tools and workflows
  - Analyzed the impact of pain points and found potential opportunities



# PAIN POINTS. IMPACTS. OPPORTUNITIES.



## Tool Fragmentation

**Impacts:**

- Consumes scarce staff resources and creates bottlenecks in collaboration and knowledge transfer.

**Opportunities:**

- Unify platforms for data communications.

## Data Silos

**Impacts:**

- Delayed response times

**Opportunities:**

- Integrate the Athletic Management System and AR for real-time feedback.

## Manual Workarounds

**Impacts:**

- Repetition of daily tasks
- Inefficient use of the staff's limited time

**Opportunities:**

- Connect existing wearables and systems to the Athletic Management System
- Customizable and flexible interface.
- Optimize data flow with a network of connected wearables and imported spreadsheet data.

## Hardware Limitations

**Impacts:**

- Loss of money and compromise of critical data collection efforts

**Opportunities:**

- Design with robust hardware, keeping the field of use in mind.

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## AR Training Glasses

- Real-time performance overlays.
- Video recording and playback for drills.
- Durability and comfort for athletes.



## Ideal Reports & Dashboards

- Player load, performance metrics, participation color codes, injury updates, equipment stats (jersey, helmet, pad details)
- Weekly/seasonal trend comparisons
- Customizable analytics dashboards
- Real-time feedback
- Mobile and desktop compatible

## Athletic Management System

- Centralized dashboard.
- Automated reporting.
- Integration with existing tools and wearables.
- User-friendly interface with color-coded metrics and feedback.

*"We all want to be speaking the same language and reading out of the same book."*  
- Head Athletic Trainer



**FINDINGS:  
DESIRED  
FEATURES**





# DECISIONS



## Key Insight

AR would amplify existing data fragmentation unless a centralized Athletic Management System (AMS) existed first.

## Recommendation

Pause AR delivery. Prioritize AMS to unify workflows, data, and communication.



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## Actionable Insights

Stage 0-1 research uncovered critical pain points directly informed the design of the AMS prototype.



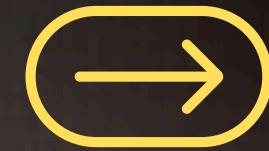
## Stakeholder Connectivity

Stakeholders responded enthusiastically to both the preliminary research and the interviews.



## Business Goals

- Secured \$250K+ incremental funding
- Shifted roadmap from AR-first to AMS-first
- Positioned platform for multi-sport expansion



IMPACT

# POST-GAME ANALYSIS

## What This Project Demonstrates

- Ability to work in regulated environments
- Comfort with technical and operational constraints
- Translating user research into strategic decisions



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# THANK YOU

