Right Call

Team Members: Josh, Lyle, Jeremiah, Luke, Bradley

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Client Information

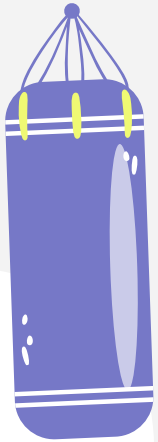
What does RefReps do?

RefReps

History

- Founded in 2020, after an idea CEO Kyle Armstrong had in a discussion with IUPUI officials about a referee simulation software.

- The hardware to run the original product sold out in 3 days, and again the next week.



Current Products

- Interactive & educational referee training videos for almost a dozen sports such as football, basketball etc...

- Other Resources for referee training include magazines, infographics and statistical analysis diagrams.

02

Design Items

What are we doing?

Business Requirements

- **BR1: We want to increase the efficiency of lessons being displayed to the trainees.**
  This is a business requirement because it describes one of the client's overall goals for the system. The client wants a video editor that has multiple timestamps each with an activity in a video. This will better the flow of the training, because the calls will be related to each other. The client also wants a video encoder that can add timestamps to the video to allow the lesson designer to decide where the call is, and we feel that this covers these goals.
- **BR2: We want to improve the accuracy of the feedback to the user based on their eye-tracking data.**
  This is a business requirement because it describes the second overall goal of the software: the eye-tracking and feedback of the user. The client wants the system to be able to create an activity when the timestamp ends that will allow us to create dynamic problems and answers. Through the use of eye-tracking software, we will be able to verify that the user is looking at the correct spot in the lesson. This will allow us to provide more accurate feedback and results to each of the user's answers. We feel that this business requirement covers these goals.

Use Cases

Actors

- Administrator (Admin)
- Trainee

Use Cases

- UC1: Display an interactive video in the browser.
- UC2: Display a question for each call timestamped in the video.
- UC3: Collect the user's answer to each question.
- UC4: Collect user's eye-tracking data via webcam for each call.
- UC5: Display feedback based on eye-tracking data.
- UC6: Display user's overall results at end of lesson.

Functional Requirements

Requirements	Priority	Connection
- FR1: The user should select which right call lesson they want to take.	- High	- BR1
- FR2: The application should display a video for the course the user is taking.	- High	- BR1
- FR3: The video will have question-related actions assigned to each timestamp in the video.	- High	- BR1
- FR4: The system should have eye-tracking actions assigned to each timestamp.	- Medium	- BR2
- FR5: The user should use their webcam during the lesson for eye-tracking actions.	- Medium	- BR2
- FR6: The video must stop and ask the user what they think the call is at each timestamp call.	- High	- BR1
- FR7: User shall select their answer to each timestamped call throughout the video/lesson.	- High	- BR1
- FR8: Admin should be able to upload, change, retrieve, and delete videos from the database.	- Medium	- BR1
- FR9: Admin should be able to upload, change, retrieve, and delete timestamp information from the database.	- Medium	- BR1
- FR10: User shall receive feedback based on the result of the timestamp action	- Medium	- BR2
- FR11: User should see on the screen where they were meant to be looking if the system detects no webcam was used.	- Low	- BR2
- FR12: User shall see their answer results to each call at the end of the lesson/video.	- Medium	- BR2
- FR13: User shall have the option to retake a lesson if they did not pass or get all the calls correct.	- Low	- BR1
- FR14: User shall have the option to watch the video in a virtual reality environment.	- Low	- BR1
- FR15: User should be able to login and logout out of the application.	- Medium	- BR1

Non-Functional Requirements

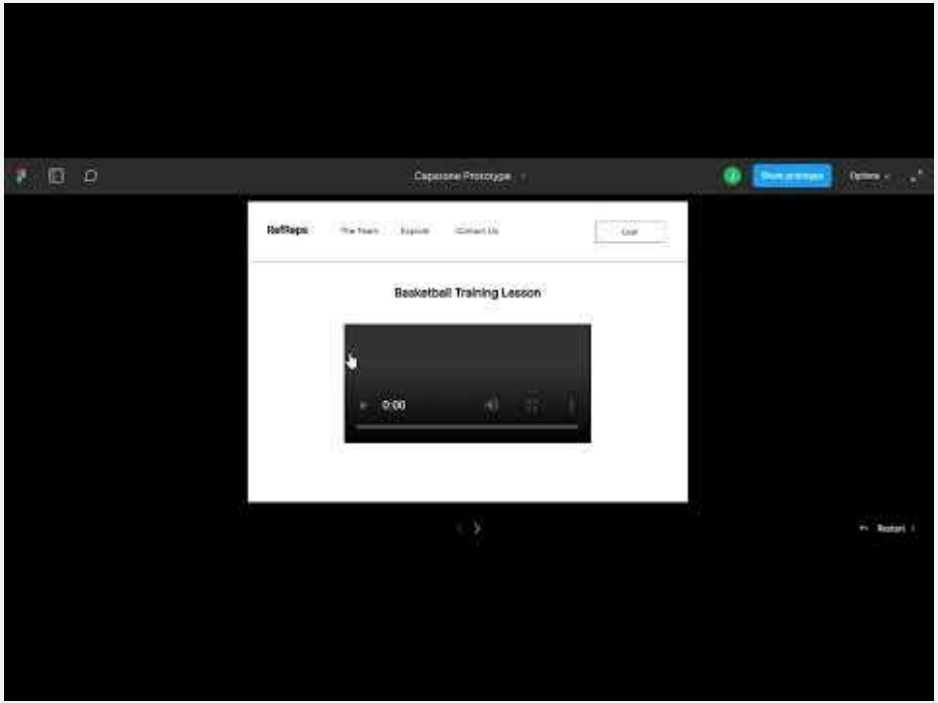
Requirements	Priority	Requirement Connection
- NR1: The user should not be able to go back and redo a question at a timestamp if they were incorrect during their current video session, which means they must complete the whole video before attempting the lesson again.	- Medium	- BR2

Tech Stack

- Front-end
  - Javascript/Typescript with Vue Framework
- 2. Rest API
  - Written in Node.js
  - Using JS Mongo connector
- 3. Webcam video processor
  - Microservice using a eye tracking library
  - We will be doing tests on each library to see which is best suited for our application.
  - Likely C#, python, or JS
- 4. Database
  - MongoDB NOSQL database

Prototype

Figma Link: https://www.figma.com/file/GAmmZXeNbsSKGaggl7OWeW/Capstone-Prototype



First Iteration Features

- FR1: The user should be able to select which right call lesson they want to take.
- FR2: The application should display a video for the course the user is taking.
- FR3: The video should have question-related actions assigned to each timestamp in the video.
- FR6: The video must stop and ask the user what they think the call is at each timestamp call.
- FR7: User shall select their answer to each timestamped call throughout the video/lesson.
- SPIKE: The client wants us do research on eye tracking libraries and present what we find as the best one.

03

Feedback

What other people thought

Mentor Feedback

- Encouraged us to clarify how virtual reality would be built into the project
- Gave us few tips that our use cases were worded incorrectly, and we rewrote a lot of the use cases.
- Gave us a few tips on how to improve our domain model.

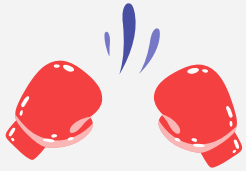
Client Feedback

“““

- Designs are great. Right along the lines they are hoping for
- Already thought of things they were going to assign later on
- Took what they said and ran with it
- Appreciated our excitement on the project
- Extremely accurate to what they are looking for

”””

MANY THANKS!

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