



Beta Presentation

Clean and Sterilized Instrumentation

The Capstone Experience

Stryker IST

Benjamin Eyke
Suhas Rao Cheeti
Lee Sullivan
Jerry Chen
Ismail Abdi
Noah Vermeulen

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*From Students...
...to Professionals*

Fall 2025

Project Overview

- Hospital employees are overworked
- Soiled tools make it to the operating room
- Packages are missing tools, or get lost
- Our solution:
 - Monitor packaging
 - Track packages
 - Saves money and time



Team Member's Technical Tasks

Technical Tasks Assigned

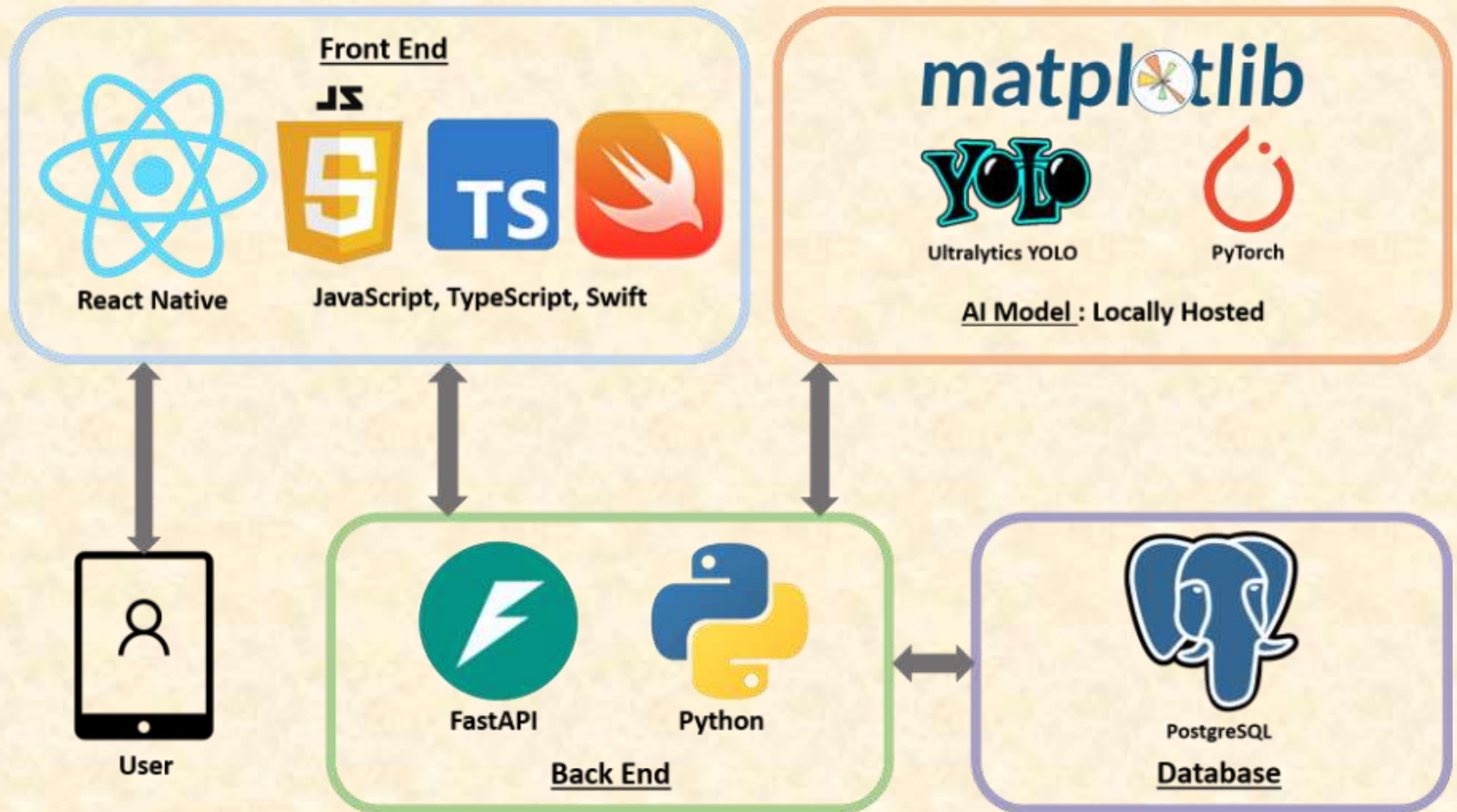
- Benjamin Eyke
 - Built camera component.
 - Designed & developed dataset for object detection models.
 - Wrote an algorithm to artificially augment data for the dataset.
 - Setup backend to collect error logs.
 - Location select screen and search API component.
 - Connected QR scanner for login, navigation, and package check in.
- Noah Vermeulen
 - Create package and tool class with corresponding APIs to create, edit, and get information from these classes with schemas for requests and responses.
 - Tool status and location tracking in the back end.
 - Full stack connection for APIs.
 - User authentication back-end code refinement.
 - Front-end updates for package tracking and login.
 - Capturing and annotating images for YOLO model dataset training.
- Suhas Rao Cheeti
 - Worked on Fron-tend Design and the Frontend
 - Connected Frontend to Backend with Fetch Calls
 - Worked on Improving Tool Status Model (Annotations and Code)
 - Worked On Home, Packages, Camera, and Login Screens
 - Worked on Navigation bar and UI Components
- Lee Sullivan
 - Connected object detection model to the camera page and added bounding boxes to show model detections
 - Created the Package Tracking page and connected it to the location select page
 - Created the Add Users page
 - Connected status log to the camera frame and added "extra" tool functionality for it
- Jerry Chen
 - Setting up database
 - Finish implementing error logging
 - Add QR Printing and Add Package Screen
 - Annotating images and training YOLO model
- Ismail Abdi
 - React drawer / routing to all pages / UI /design
 - Camera component for QR and package
 - User Authentication / users page
 - Data visualization
 - QR codes for packages

Technical Tasks Completed

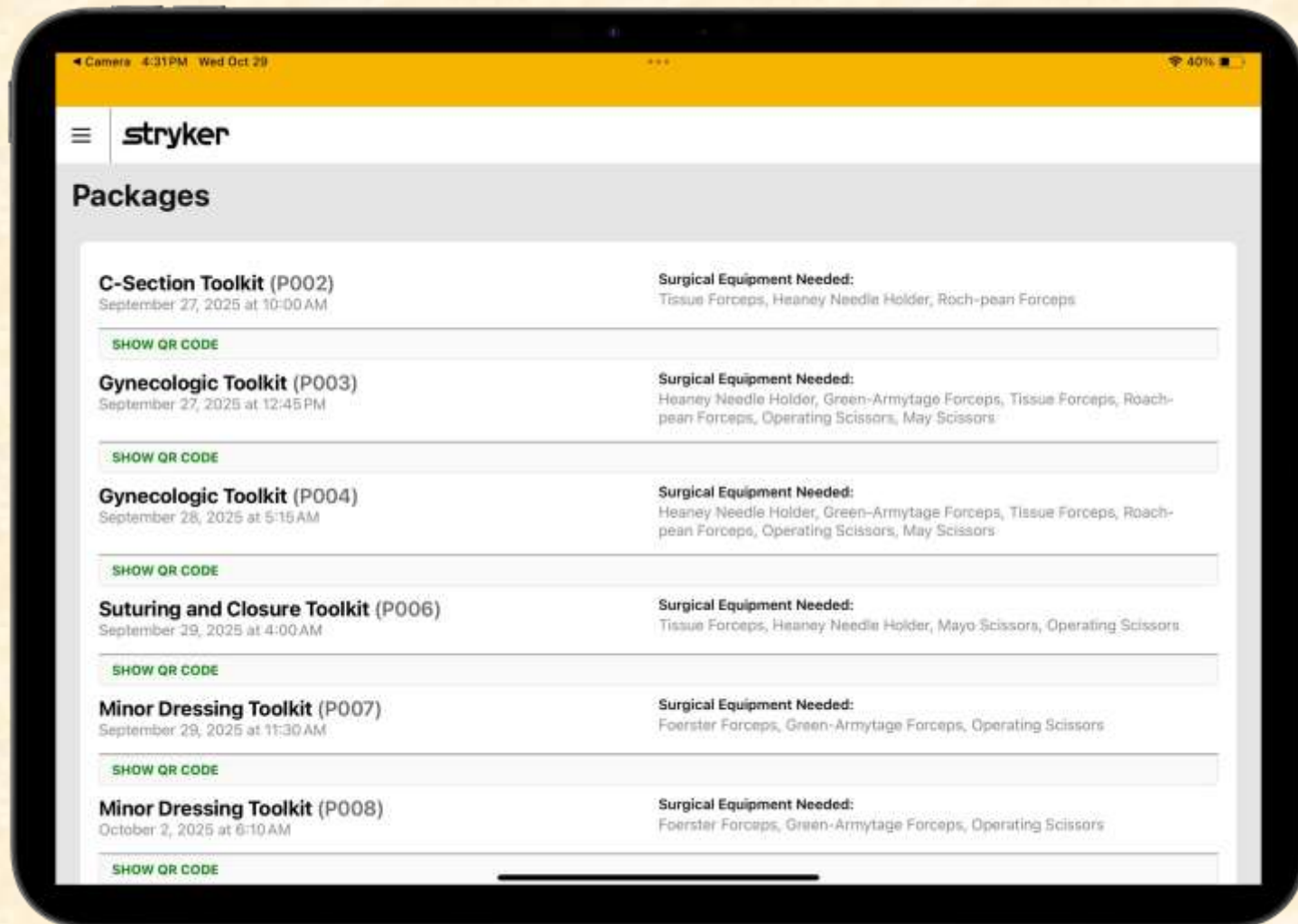
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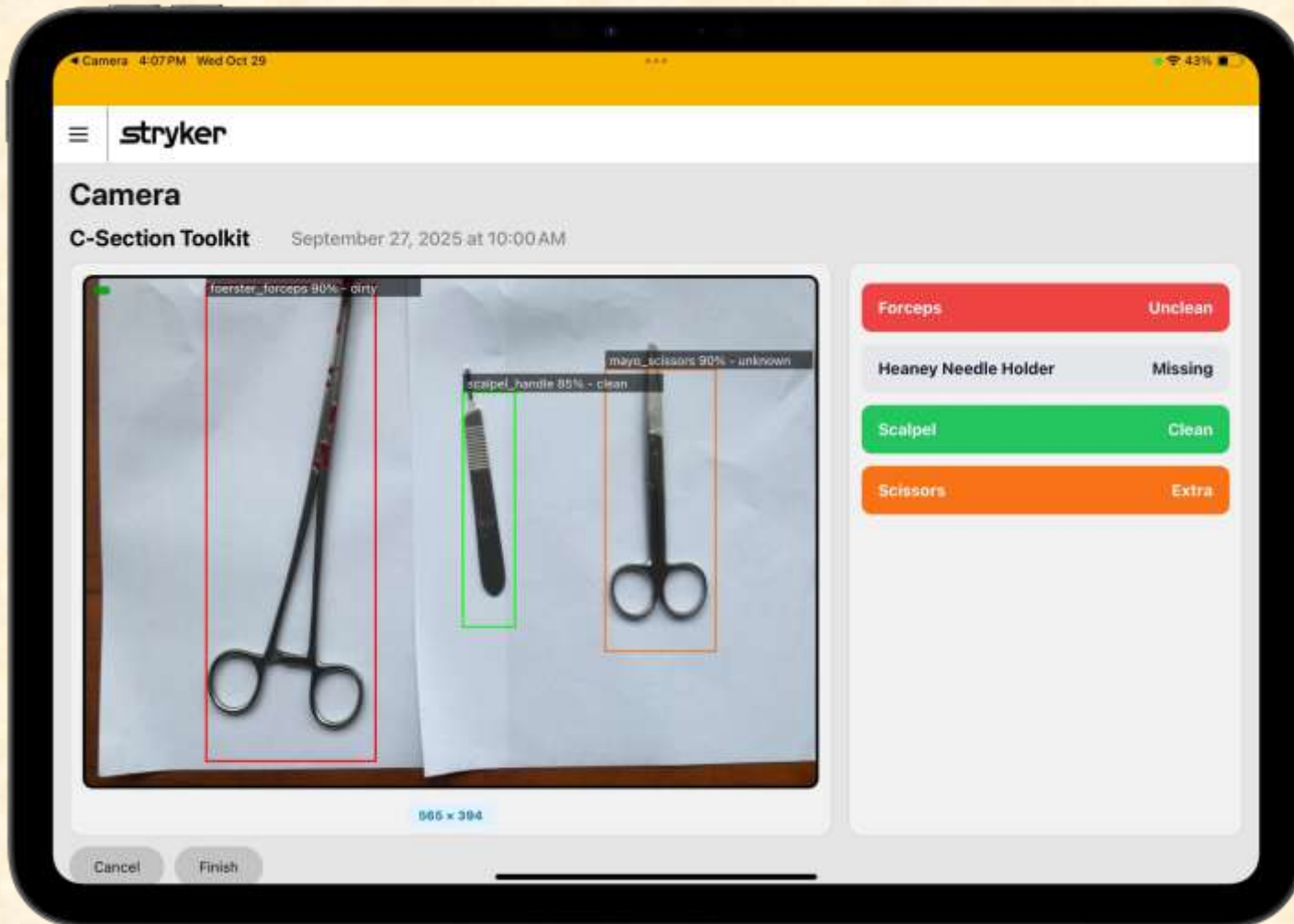
System Architecture



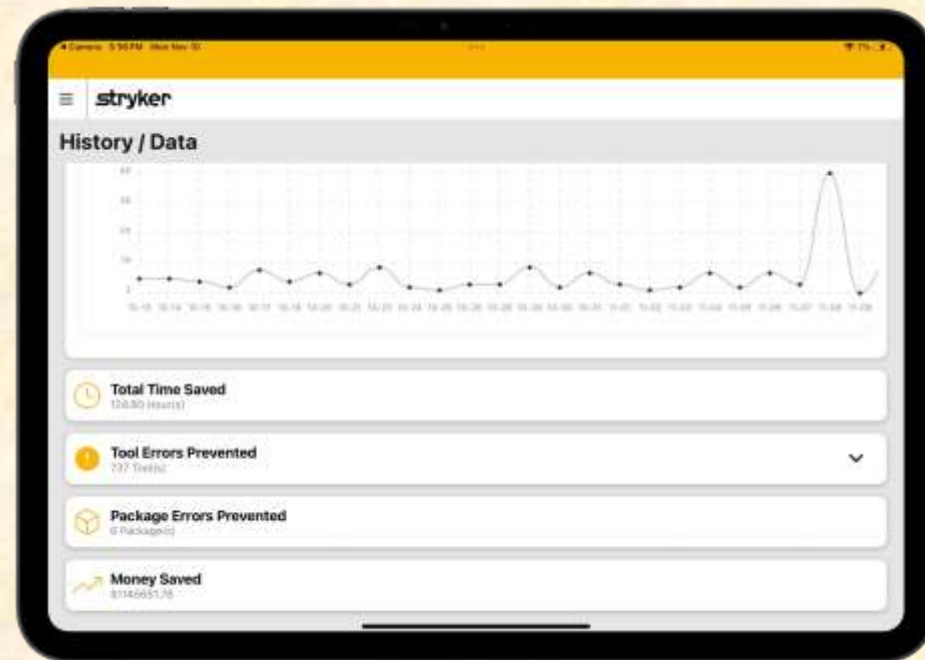
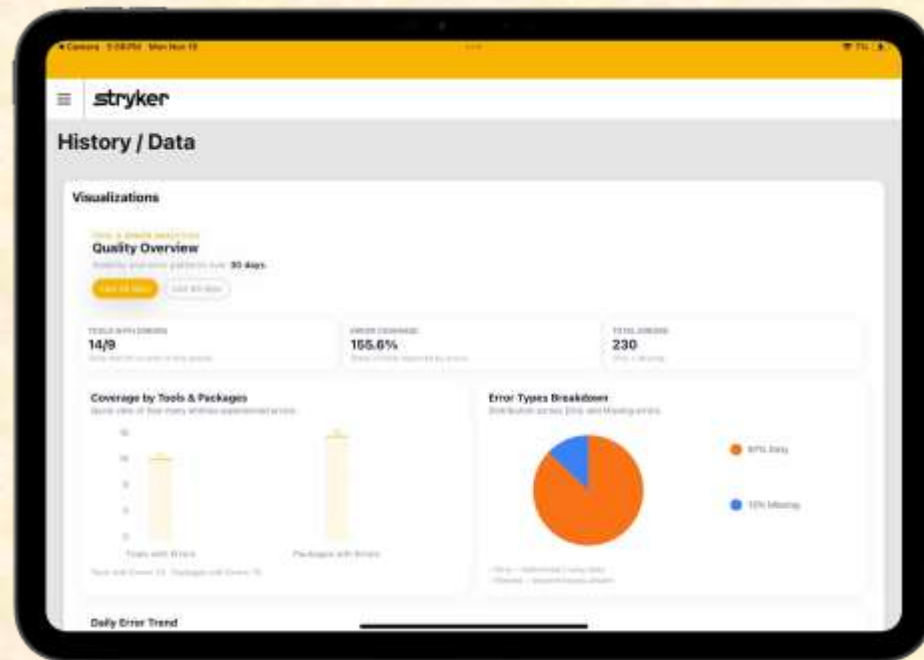
Packages Page



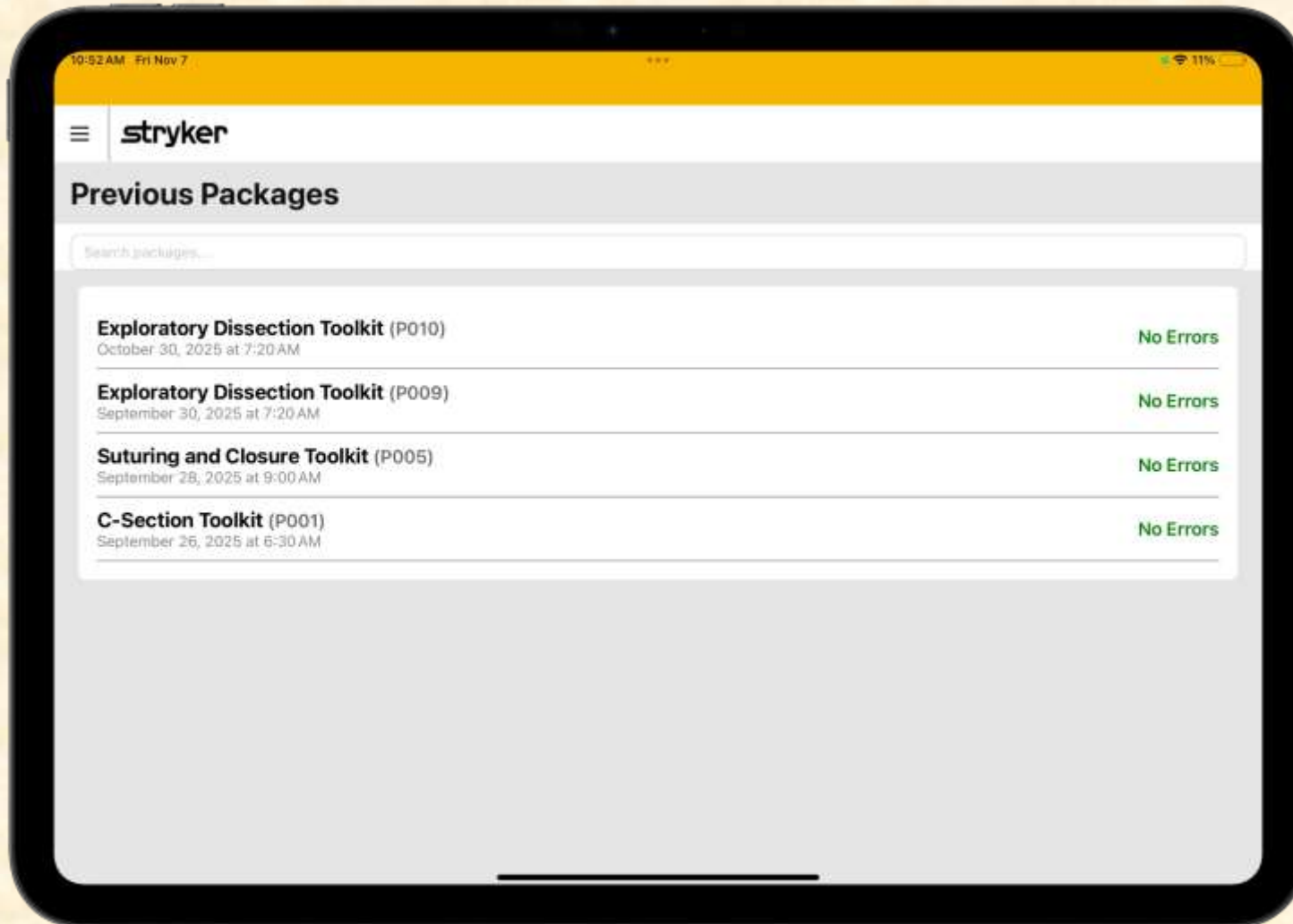
Camera Page



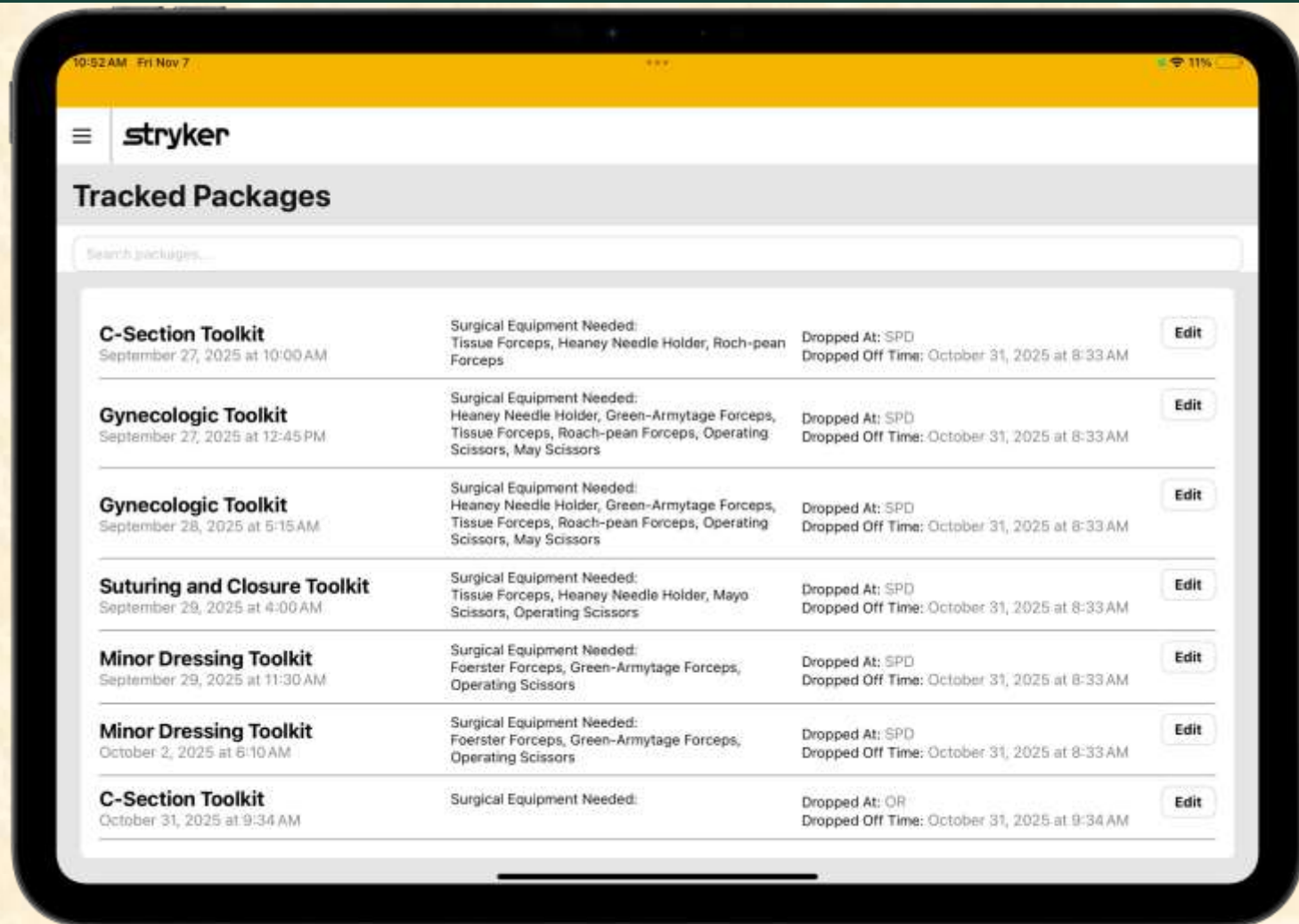
History/Data Page



Previous Packages Page



Package Tracking Page



Add Package Page

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Add Package

Package Type

Enter package type

C-section Toolkit

Gynecologic Toolkit

Suturing and Closure Toolkit

Infusion Pump/Infusion Stand

Code

P011

Location

P011 OS Storage Missing

Tools

Tap to add

Scalpel Handle

Operating Scissors

Mayo Scissors

Infusion Pump/Infusion Stand

+ Add Tool

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Add Package

Code

P011

Location

P011 OS Storage Missing

Tools

Tap to add

Scalpel Handle

Operating Scissors

Mayo Scissors

Infusion Pump/Infusion Stand

+ Add Tool

Due Date

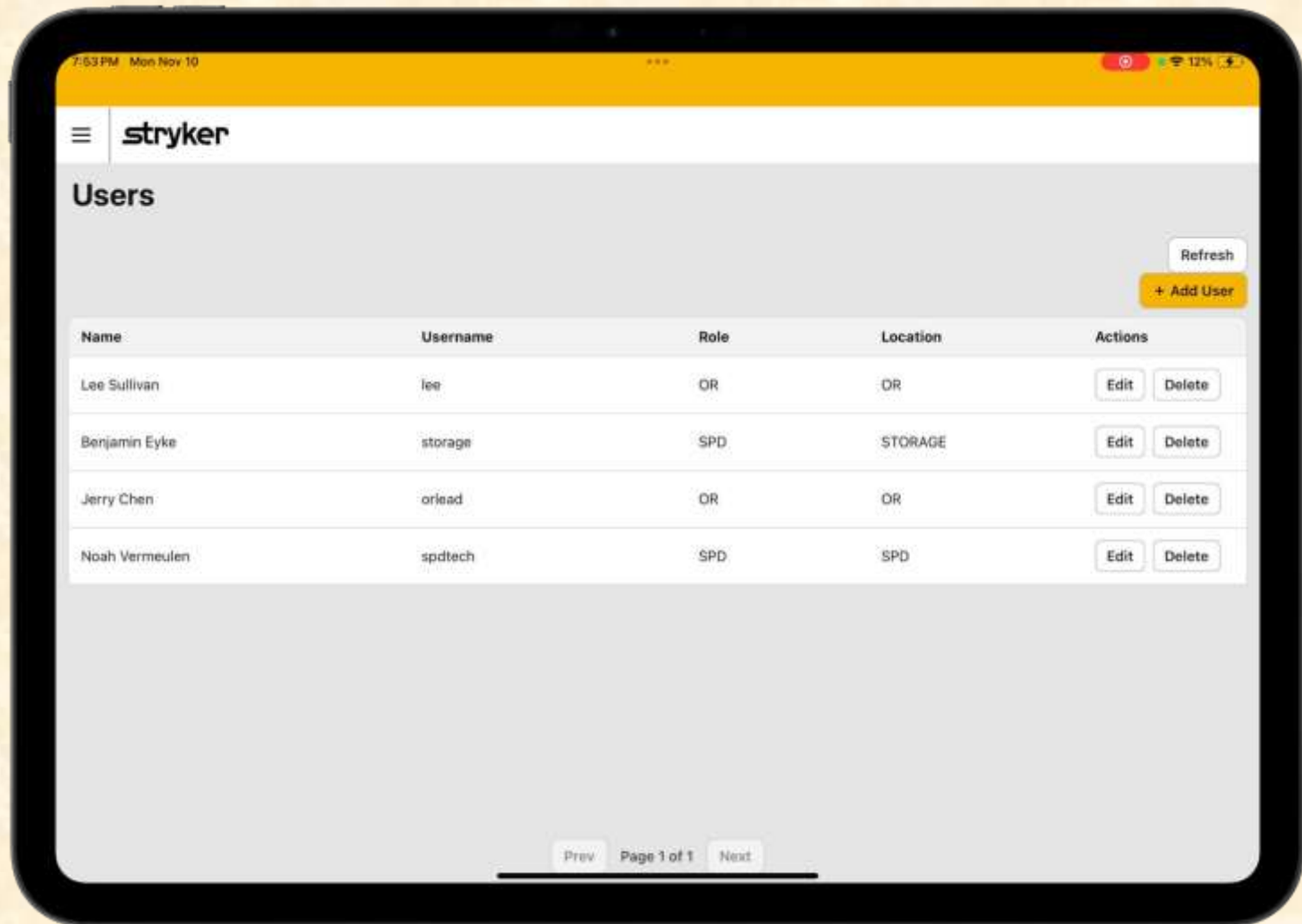
10/10/2020

10:10 AM

Add Package



Users Page



Add User Page

10:53 AM Fri Nov 7

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Add User

ID

First Name

Last Name

Password

Role

SPD OR

Location

Back Create User



What's left to do?

- Features
- Stretch Goals
 - Toggling bounding boxes
 - Add a third model
 - Add more tools to the model
 - Tracking notifications
- Other Tasks
 - Debugging edge cases
 - Document code / cleanup code base



Questions?

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