Shift Scheduling and Automation System – User Manual

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User Manual

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1. Installation & Deployment

This system is already fully deployed and accessible via:

- **Frontend (React)**: https://2025-csc1097-lharper2.vercel.app/
- **Backend (Django API)**: Hosted on Render

No manual installation is required to use the system.

Backend Deployment Details (Render)

The Django backend is deployed using Render's continuous deployment pipeline. Code pushes to the main branch automatically trigger a build and redeployment. Environment variables for API keys and database config are securely stored in the Render dashboard.

Frontend Deployment Details (Vercel)

The React frontend is hosted on Vercel. It is continuously deployed from the same GitHub repository, with changes to the main branch triggering rebuilds. Static content and API calls are automatically wired to the deployed backend.

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2. User Guide

2.1 Overview

This web-based system is designed to manage large airport security shift rosters, automate break scheduling using AI, and provide live feedback for coordinators. Users can monitor staff, simulate time, and receive proactive alerts from the AI Co-Pilot assistant.

2.2 Main Features

- **Test Clock Simulation**: Manually advance time to simulate full shifts.
- **Shift Sections**:
    - **On Duty**: Displays currently active staff with shift progress bars.
    - **On Break**: Lists staff currently on break with live countdown timers.

    - **Finished**: Shows staff who have completed their shift.
- **AI Co-Pilot**: Intelligent assistant that:
    - Suggests break times
    - Warns about potential coverage issues
    - Provides early finish recommendations
- **Chat Assistant**: Type natural language questions like:
    - "Who is next due a break?"
    - "Who can I finish early?"
- **Automation Mode**:
    - Automatically moves staff through shift lifecycle
    - Schedules breaks using AI based on traffic load and rule constraints
- **Pop-out Menu**:
    - You can assign different roles to officers here
    - Import people coming into work
    - Graph detailing number of staff to make it easier to keep track

2.3 How to Use the Interface

1. **Navigate to the Website**
   Go to https://2025-csc1097-lharper2.vercel.app/
2. **Using the Test Clock**
   Use the clock controls at the top of the interface to simulate time changes. The system responds as if it were operating in real-time.
3. **Monitoring Staff**
   Watch how staff move from Rollcall → On Duty → On Break → Finished based on time and AI decisions.
4. **Manually Move Staff**

   You can manually move staff in between these sections to give them there breaks and get warnings if you're sending someone on a break too early or too late
5. **Viewing AI Suggestions**
   Click the robot icon in the bottom-right corner to open the AI Co-Pilot panel. Review alerts and interact with the assistant via chat.
6. **Running Full Automation**
   Enable automation mode to allow the system to make all scheduling decisions based on operational rules and passenger traffic data.

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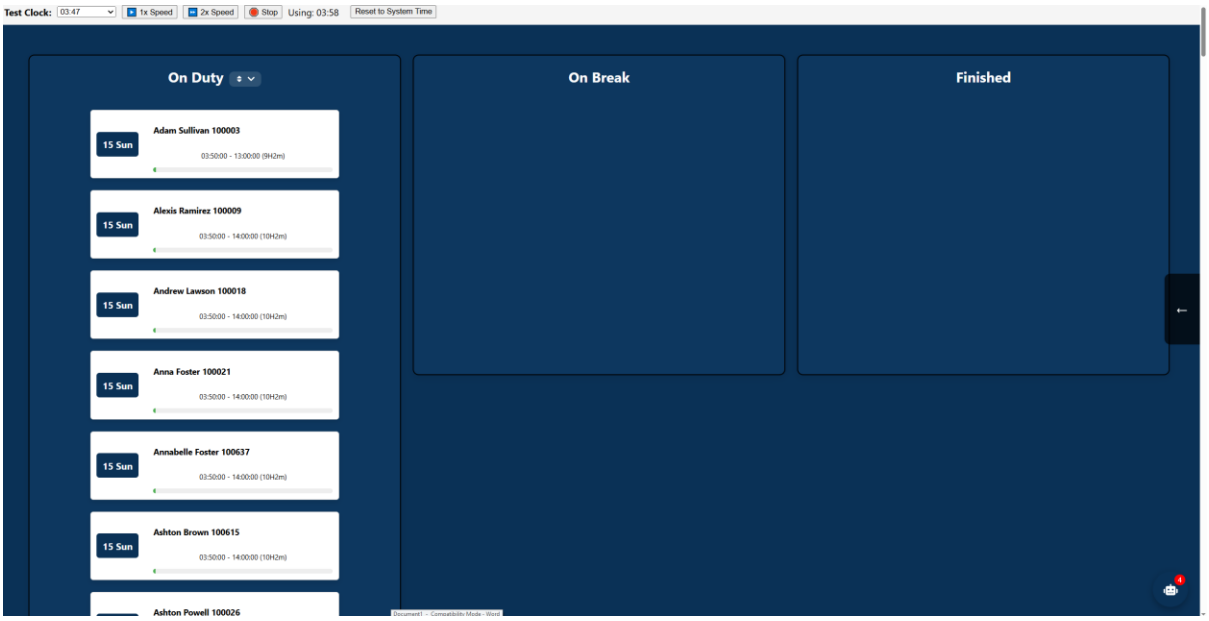
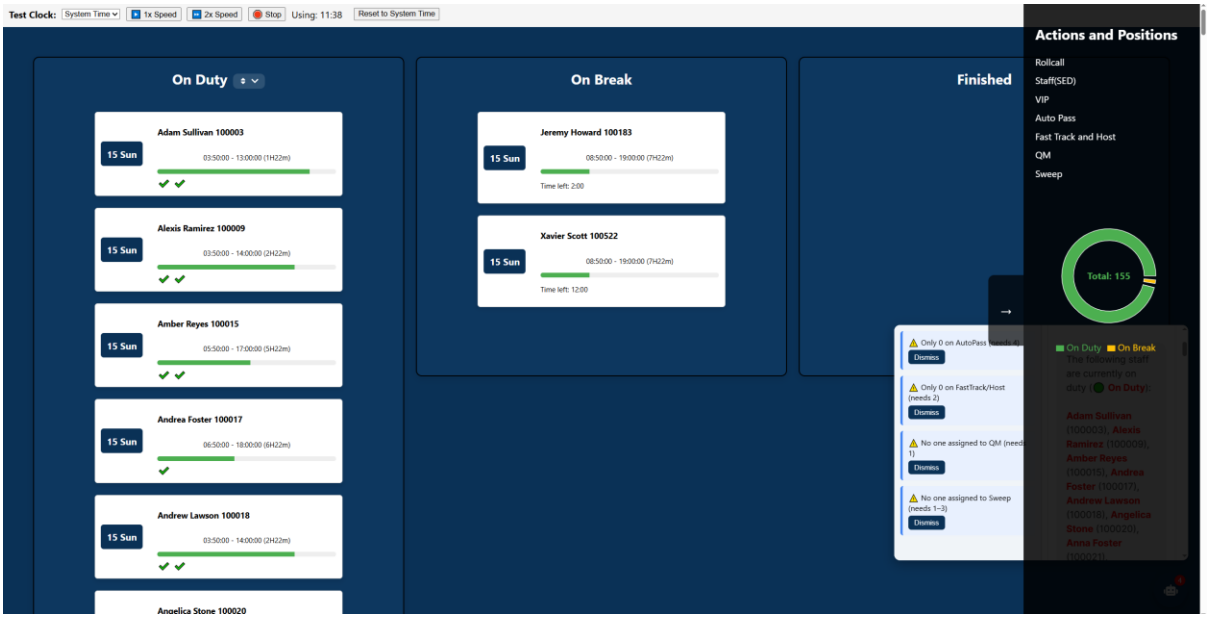
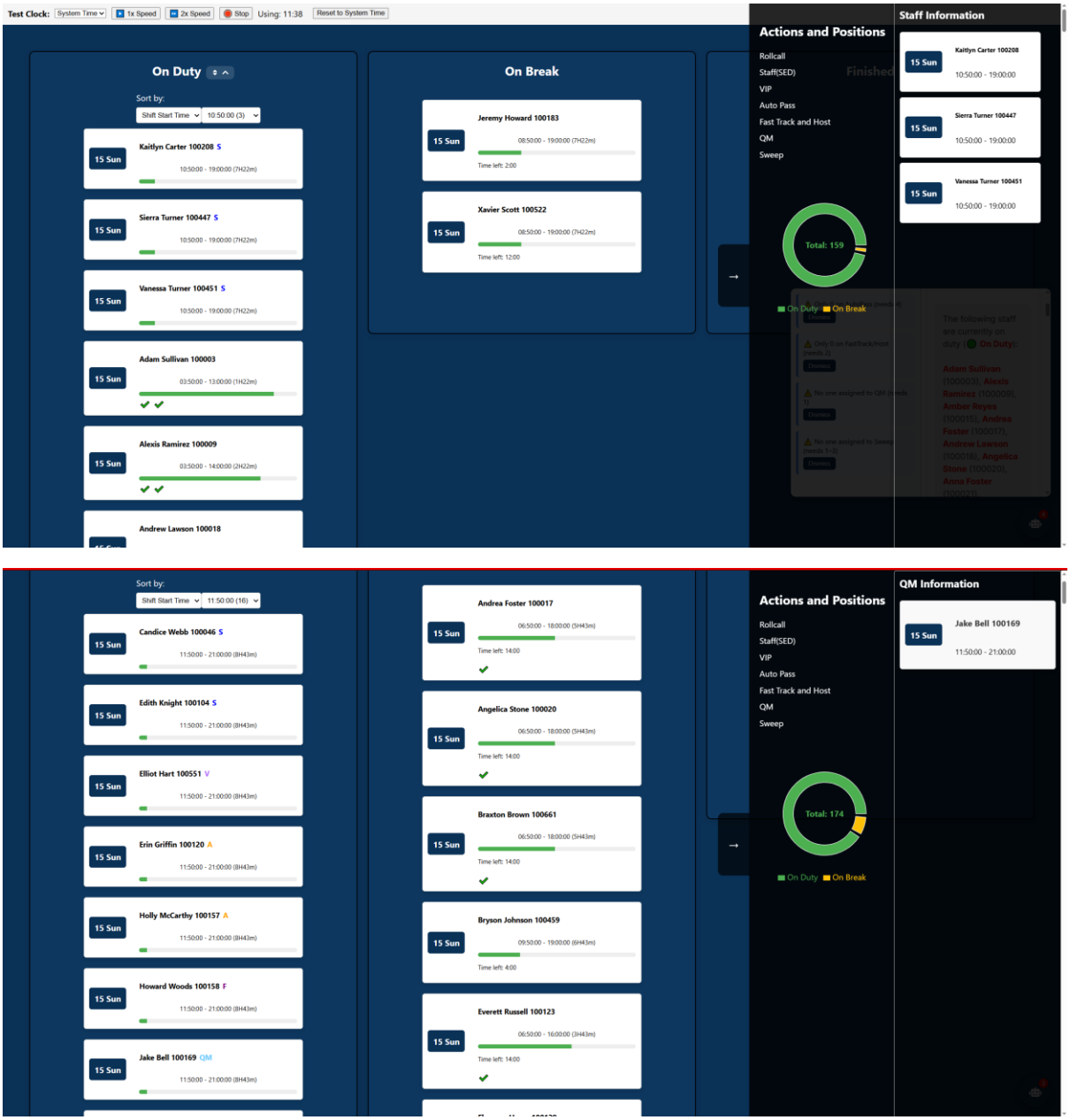
3. Screenshots

- **Figure 1**: On Duty staff view with shift progress bars

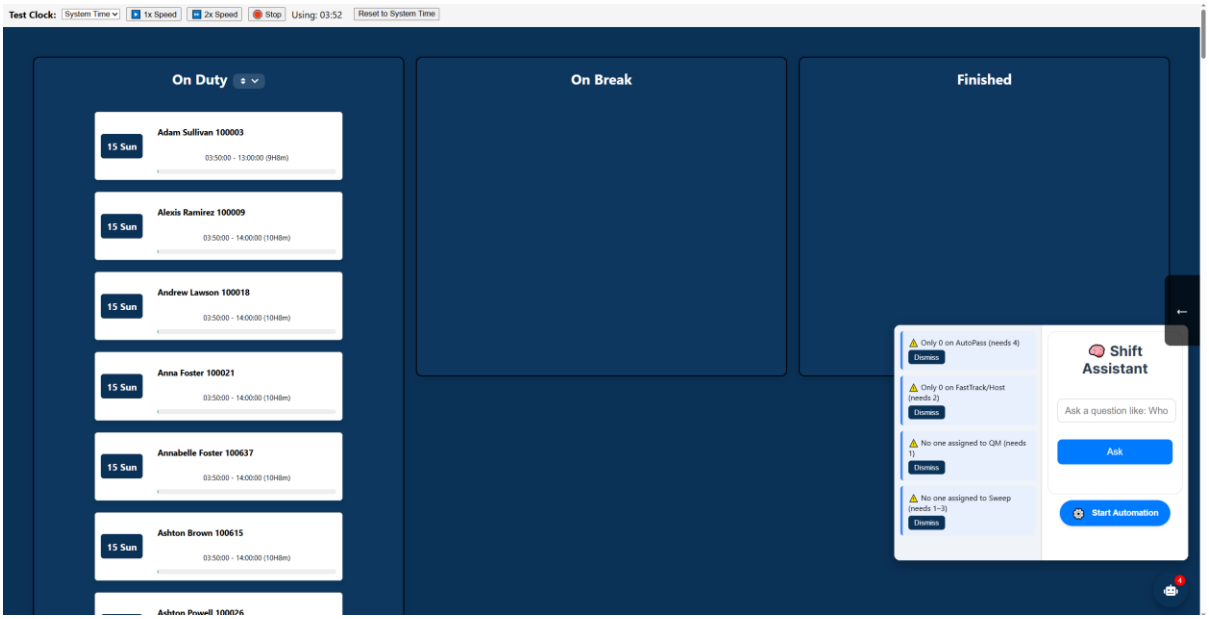


- **Figure 2**: Popout Menu

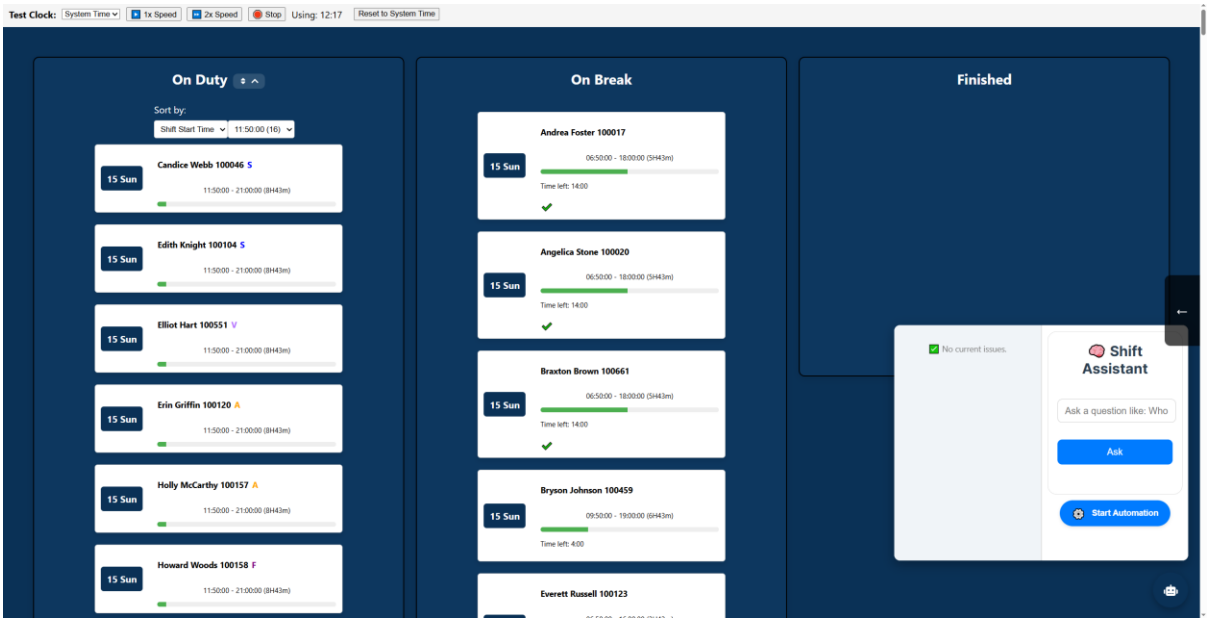




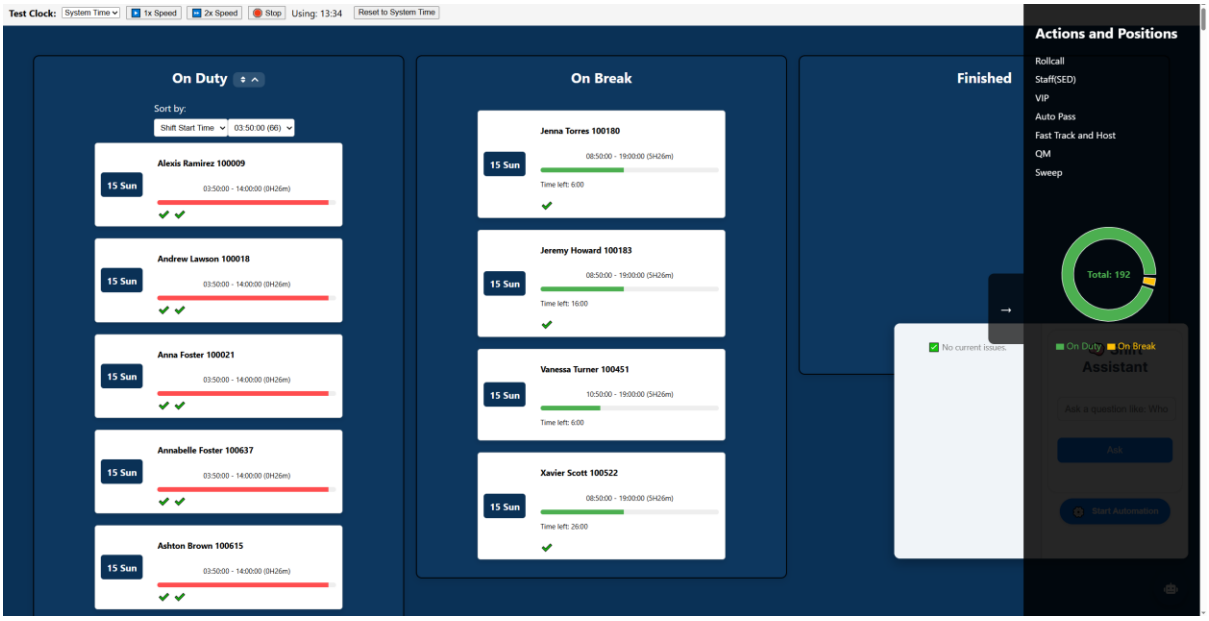
- **Figure 3**: AI Co-Pilot alert panel with warnings of tasks



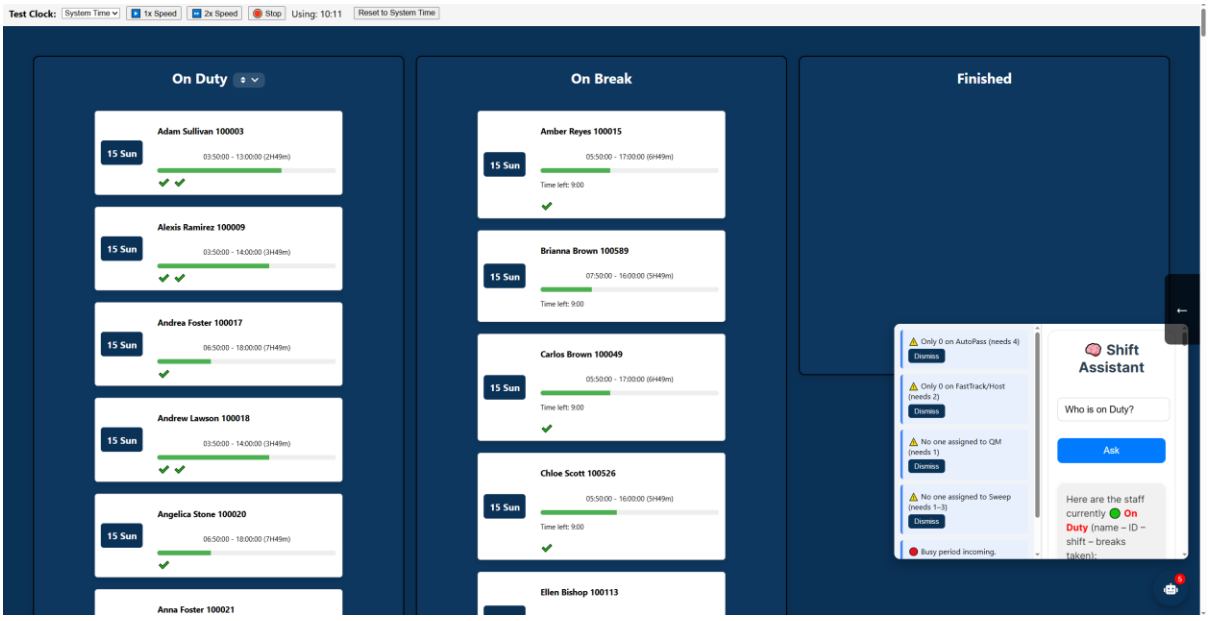
- **Figure 4**: AI Co-Pilot alert panel with warnings gone if tasks are completed

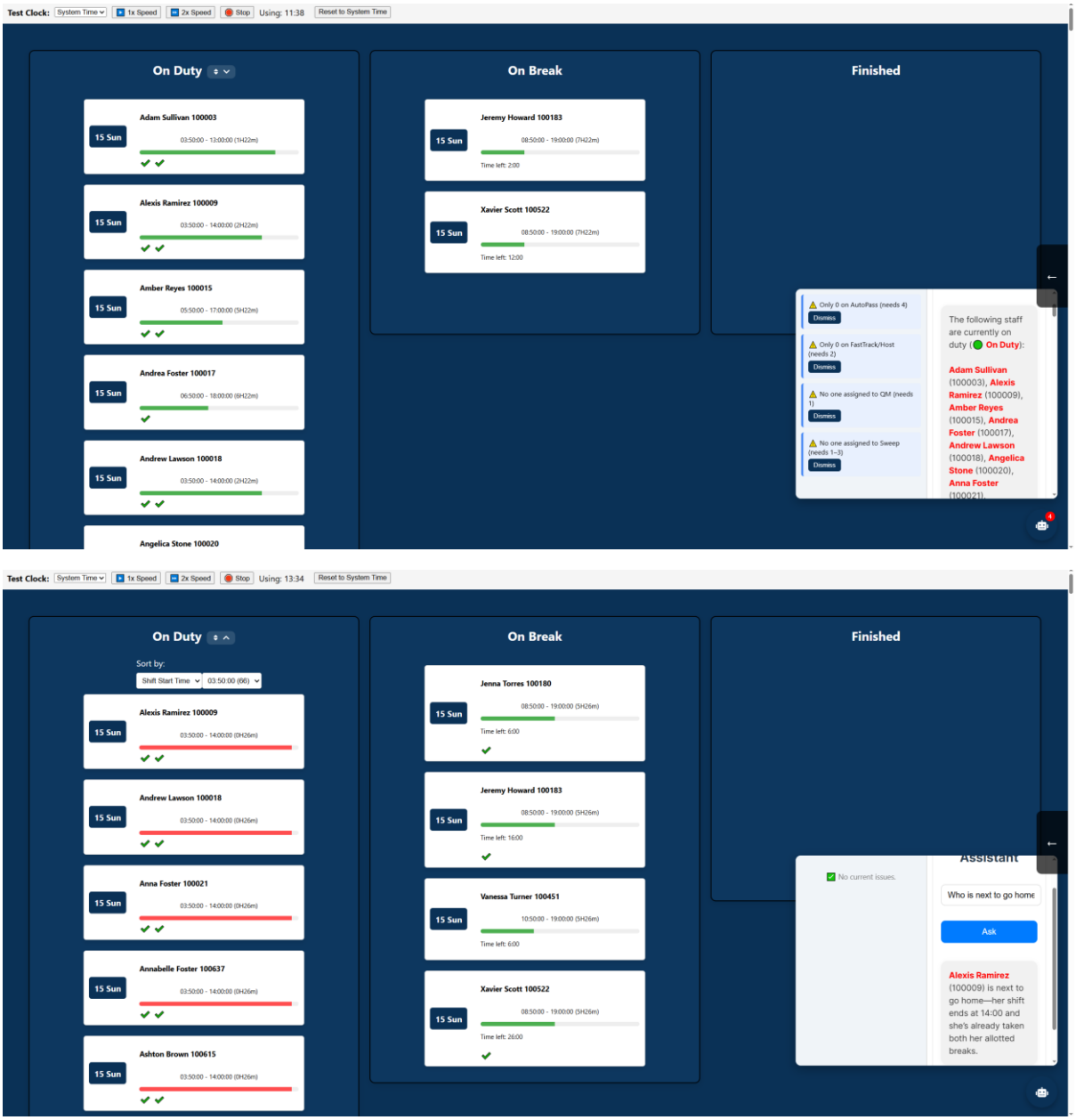


- **Figure 5**: Red bar indicating someone is close to finishing there shift:

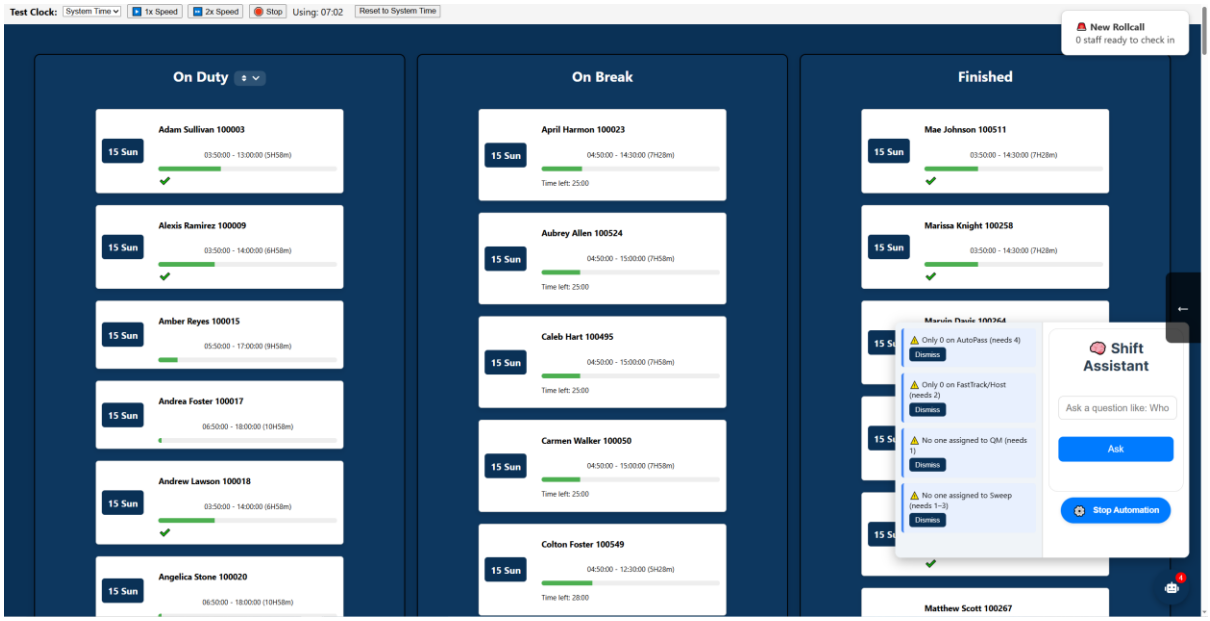


- **Figure 6**: Natural language assistant responding to a user query





- **Figure 7**: Test clock UI simulating shift progression


Test Clock:
System Time
1x Speed
2x Speed
Stop
Using: 07:02
Reset to System Time
New Rollcall
0 staff ready to check in
On Duty
Adam Sullivan 100003
03:50:00 - 13:00:00 (5H58m)
Alexis Ramirez 100009
03:50:00 - 14:00:00 (6H58m)
Amber Reyes 100015
05:50:00 - 17:00:00 (9H58m)
Andrea Foster 100017
06:50:00 - 18:00:00 (10H58m)
Andrew Lawson 100018
03:50:00 - 14:00:00 (6H58m)
Angelica Stone 100020
06:50:00 - 18:00:00 (10H58m)
On Break
April Harmon 100023
04:50:00 - 14:30:00 (7H28m)
Time left: 25:00
Aubrey Allen 100524
04:50:00 - 15:00:00 (7H58m)
Time left: 25:00
Caleb Hart 100495
04:50:00 - 15:00:00 (7H58m)
Time left: 25:00
Carmen Walker 100050
04:50:00 - 15:00:00 (7H58m)
Time left: 25:00
Colton Foster 100549
04:50:00 - 12:30:00 (5H28m)
Time left: 28:00
Finished
Mae Johnson 100511
03:50:00 - 14:30:00 (7H28m)
Marissa Knight 100258
03:50:00 - 14:30:00 (7H28m)
Only 0 on AutoPass (needs 4)
Dismiss
Only 0 on FastTrack/Host (needs 2)
Dismiss
No one assigned to QM (needs 1)
Dismiss
No one assigned to Sweep (needs 1–3)
Dismiss
Shift Assistant
Ask a question like: Who
Ask
Stop Automation
Matthew Scott 100267