

CellStatus - Manufacturing Cell Tracker

A modern, real-time manufacturing cell status tracking application built for production floor teams. Monitor machines, track production metrics, manage operator assignments, and log downtime incidents—all in one intuitive dashboard.

📸 Screenshots

Dashboard - Real-Time Cell Overview

The screenshot displays the 'Cell Dashboard' interface. On the left, a sidebar navigation includes 'Dashboard' (selected), 'Events', 'Machines', 'Team Members', 'Maintenance', and 'Reports'. The main area shows a summary of machine status: 20 Running, 0 Idle, 0 Maint/Setup, 5 Down, 1810 / 1930 Units, and 88% Avg Eff. Below this, eight machine cards are listed in a 2x4 grid:

- HD PTO Shave**: S-HD-2013, Status: Down, Assign Operator, Production: 100 / 100, Cycle Time: 160.0s, Efficiency: 100%, Run, Idle, Submit Production Stats. Updated at 2025-12-04T01:12:00.165Z.
- HD PTO Temper Oven**: T-HD-2011, Status: Running, Assign Operator, Production: 100 / 100, Cycle Time: 120.0s, Efficiency: 100%, Run, Idle, Submit Production Stats. Updated Just now.
- C2 Robodrill**: D-C2-2102, Status: Running, Assign Operator, Production: 45 / 45, Cycle Time: 120.0s, Efficiency: 100%, Run, Idle, Submit Production Stats. Updated Just now.
- C2 Robodrill**: D-C2-2-2102, Status: Running, Assign Operator, Production: 45 / 45, Cycle Time: 120.0s, Efficiency: 100%, Run, Idle, Submit Production Stats. Updated Just now.
- C2 Broach**: B-C2-2102, Status: Running, Assign Operator, Production: 100 / 100, Run, Idle, Submit Production Stats. System Online.
- C1 Broach**: B-C1-2102, Status: Running, Assign Operator, Production: 100 / 100, Run, Idle, Submit Production Stats.
- C1 Robodrill**: D-C1-2-2102, Status: Running, Assign Operator, Production: 45 / 45, Run, Idle, Submit Production Stats.
- MD PTO Broach**: B-MD-2014, Status: Running, Assign Operator, Production: 100 / 100, Run, Idle, Submit Production Stats.

Live dashboard showing all machines with status cards, production stats, and shift selection

Machines Management

The screenshot shows the 'Machines' section of the Cell Status Manufacturing software. On the left, a sidebar titled 'Cell Status Manufacturing' includes 'NAVIGATION' with links to Dashboard, Events, Machines (selected), Team Members, Maintenance, and Reports. A status indicator 'System Online' is shown at the bottom. The main area has a header 'Machines' with a subtitle 'Manage your manufacturing cell equipment' and a 'Add Machine' button. Below is a table titled 'All Machines' with columns: Machine, ID, Status, Production, Efficiency, and Actions. The table lists nine machines:

Machine	ID	Status	Production	Efficiency	Actions
HD PTO Shave	S-HD-2013	⚠️ Down	100 / 100	100%	edit trash
HD PTO Temper Oven	T-HD-2011	▷ Running	100 / 100	100%	edit trash
C2 Robodrill	D-C2-2102	▷ Running	45 / 45	100%	edit trash
C2 Robodrill	D-C2-2-2102	▷ Running	45 / 45	100%	edit trash
C2 Broach	B-C2-2102	▷ Running	100 / 100	100%	edit trash
C1 Broach	B-C1-2102	▷ Running	100 / 100	100%	edit trash
C1 Robodrill	D-C1-2-2102	▷ Running	45 / 45	100%	edit trash
MD PTO Broach	B-MD-2014	▷ Running	100 / 100	100%	edit trash
MD PTO Temper Oven	T-MD-2011	▷ Running	100 / 100	100%	edit trash
HD PTO Lathe	L-HD-2011	▷ Running	100 / 100	100%	edit trash

Manage your manufacturing equipment with detailed status tracking

Reports & Analytics

The screenshot shows the 'Reports' section of the Cell Status Manufacturing software. The sidebar is identical to the previous screen. The main area has a header 'Reports' with a timestamp 'Generated on 12/3/2025 at 8:15:20 PM' and a 'Refresh Timestamp' button. Below is a 'Machine Status' section with a table and a 'Maintenance Logs' section with a table and summary cards.

Machine Status

Summary of each machine and its latest production statistics

Machine	Status	Operator	Units	Eff%	Finished Today
HD PTO Shave	Down	Unassigned	100	100.0%	edit
HD PTO Temper Oven	Running	Unassigned	100	100.0%	edit
C2 Robodrill	Running	Unassigned	45	100.0%	edit
C2 Robodrill	Running	Unassigned	45	100.0%	edit
C2 Broach	Running	Unassigned	100	100.0%	edit
C1 Broach	Running	Unassigned	100	100.0%	edit
C1 Robodrill	Running	Unassigned	45	100.0%	edit
MD PTO Broach	Running	Unassigned	100	100.0%	edit

Maintenance Logs

Maintenance activities and records

Machine	Type	Description	Status	Technician
No maintenance logs				

Downtime Summary

- Total Downtime Incidents: 0
- Total Downtime: 0.0h
- Today's Downtime: 0.0h
- Avg Duration: 0m

Comprehensive production reports with machine history, maintenance logs, and downtime analysis

Production Tracking

Cell Status
Manufacturing

NAVIGATION

- Dashboard
- Events
- Machines
- Team Members
- Maintenance
- Reports

Reports
Generated on 12/3/2025 at 8:16:34 PM

Create Production Stat
Add a new production entry

Machine	Shift	Date	
Select machine	Day	12/03/2025	
Units Produced	Target Units	Downtime (min)	Efficiency % (optional)
		0	

+ Add Entry

Production Stats
Latest entries (most recent first)

Date	Machine	Shift	Units	Target	Eff%	Downtime	Actions
2025-12-03	HD PTO Shave	Day	100	100	100.0%	0m	Delete
2025-12-03	HD PTO Temper Oven	Day	100	100	100.0%	0m	Delete
2025-12-03	C2 Robodrill	Day	45	45	100.0%	0m	Delete
2025-12-03	C2 Robodrill	Day	45	45	100.0%	0m	Delete
2025-12-03	C2 Broach	Day	100	100	100.0%	0m	Delete
2025-12-03	C1 Broach	Day	100	100	100.0%	0m	Delete

System Online

Log and review production statistics by shift and date

Event Cards and Team Collaboration

Cell Status
Manufacturing

NAVIGATION

- Dashboard
- Events
- Machines
- Team Members
- Maintenance
- Reports

Events

Reduce Face Runout off MD Broach - Monitor

Dates: 2025-12-02 → 2025-12-05
Reduce to below .028.

Tasks

- New task title
- Assign to team member...

Use Shims to Shim Fixture.
Status: pending • Assigned: Bob White

Members

Select team member
Bob White (RW)

Satellite Cell MD PTO IPA

Dates: 2025-12-08 → 2025-12-26
Restart the IPA because the first try resulted in parts with poor runout. Would prefer to use parts with conforming splines and gear teeth.

Tasks

- New task title
- Assign to team member...

Check Spindle Runout
Status: in-progress • Assigned: Bob White

Members

Select team member
Bob White (RW)

New Event

System Online

Document events and assign tasks for team collaboration

Key Features

Dashboard

- **Live Status Cards:** Color-coded machine status at a glance (Running, Idle, Down, Maintenance, Setup)
- **Shift Management:** Track production across Day, Afternoon, and Midnight shifts
- **Summary Metrics:** Instant view of total running/idle/down machines, units produced, and average efficiency
- **Active Downtime Tracking:** See live downtime duration for machines currently down

Events & Team Collaboration

- **Event Creation:** Create events to organize team efforts around specific issues or projects
- **Task Management:** Break down events into actionable tasks with:
 - Task titles and descriptions
 - Start and end dates for scheduling
 - Status tracking (Not Started, In Progress, Completed, Blocked)
 - Assignee selection from your operator roster
- **Team Assignments:** Add multiple team members (operators) to events for coordinated collaboration
- **Issue Tracking:** Link events to specific problems or improvements, keeping all related tasks and team members organized in one place
- **Timeline View:** Track task progress with clear start/end dates and status indicators
- **Collaborative Workflow:** Enable cross-functional teams to work together on maintenance issues, improvement projects, or production challenges

Machine Management

- **Machine Cards:** Visual cards showing:
 - Current status with color indicators
 - Assigned operator and shift
 - Units produced vs. target
 - Real-time efficiency percentage
 - Active downtime alerts
- **Quick Actions:**
 - Change machine status with one click
 - Assign/reassign operators
 - Log maintenance activities
 - Record downtime incidents
 - Submit production stats
 - Resolve active downtime

Production Statistics

- **Daily Tracking:** Log units produced, targets, downtime, and efficiency per shift
- **Automatic Calculations:** Efficiency computed from production data
- **Historical View:** Review past production performance by machine and date
- **Operator Attribution:** Production stats automatically linked to current machine operator

Maintenance Logging

- **Maintenance Types:** Preventive, Corrective, Emergency, and Inspection

- **Status Tracking:** Scheduled, In Progress, and Completed
- **Technician Assignment:** Track who performed each maintenance task
- **History:** Full maintenance records per machine

⌚ Downtime Management

- **Reason Categorization:** Log downtime with specific reason codes:
 - **Mechanical:** Equipment Failure, Hydraulic Issue, Pneumatic Issue, Bearing Failure, Lubrication Issue
 - **Electrical:** Motor Failure, Sensor Malfunction, Control System Error, Power Supply Issue, Wiring Problem
 - **Material:** Material Shortage, Wrong Material, Material Defect, Loading Issue, Feed Problem
 - **Operator:** Break Time, Training, Shift Change, Absence, Setup Time
 - **Quality:** Quality Check, Rework Required, Calibration, Inspection, Cleaning
 - **Other:** Unplanned Downtime, Emergency Stop, Other
- **Duration Tracking:** Automatic calculation of downtime duration in minutes
- **Active Alerts:** Real-time indicators for machines currently experiencing downtime
- **Resolution Logging:** Record who resolved each incident and any notes

📈 Reports & Analytics

- **Overview Tab:**
 - Machine Status summary table
 - Maintenance logs overview
 - Machine history with production stats and maintenance records
 - Downtime summary with total incidents, duration, and per-incident details
- **Production Tab:**
 - Create new production entries
 - View all historical production stats
 - Delete individual entries
- **Downtime Analysis** (shown in Overview):
 - Total downtime incidents count
 - Total downtime hours
 - Today's downtime
 - Average incident duration
 - Per-row delete actions for downtime logs

🌐 Modern UI/UX

- **Responsive Design:** Works seamlessly on desktop, tablet, and mobile
- **Dark Mode:** Toggle between light and dark themes for 24/7 operation
- **Accessible:** Built with Radix UI primitives for keyboard navigation and screen readers
- **Intuitive:** Clean, industrial-themed design with semantic color coding

👥 Operator Management

- **Operator Database:** Maintain a list of operators with names, shifts, and availability
- **Assignment Tracking:** See which operator is running each machine

- **Shift-Based Views:** Filter and track by shift (Day, Afternoon, Midnight)
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🚀 Getting Started

Prerequisites

- **Node.js** 20 or higher
- **PostgreSQL** database (free tier available at [Neon.tech](#))

Installation

1. Clone the repository

```
git clone https://github.com/rwaynewhite15/CellStatus.git  
cd CellStatus
```

2. Install dependencies

```
npm install
```

3. Set up environment variables

Create a `.env` file in the root directory:

```
DATABASE_URL=postgresql://user:password@host/database  
SESSION_SECRET=your-random-secret-here
```

4. Initialize the database

```
npm run db:push
```

5. Start development server

```
npm run dev
```

Access the app at <http://localhost:5000>

🌐 Live Demo

Frontend: <https://rwaynewhite15.github.io/CellStatus/>

Backend API: Hosted on Render (serverless)

Tech Stack

Frontend

- React 18 + TypeScript
- Vite (fast build tool)
- TanStack Query (data fetching and caching)
- Shadcn UI + Radix UI (accessible components)
- Tailwind CSS (utility-first styling)
- Lucide React (beautiful icons)
- Recharts (production charts)

Backend

- Node.js + Express
- TypeScript
- Drizzle ORM (type-safe database queries)
- PostgreSQL (Neon serverless)
- CORS & Rate Limiting (security)

Deployment

- Frontend: GitHub Pages (static hosting)
 - Backend: Render (Node.js service)
 - Database: Neon (serverless PostgreSQL)
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Security Features

- **CORS Protection:** Whitelist-based origin control
 - **Rate Limiting:** 100 requests per 15 minutes per IP
 - **Environment Isolation:** Secure credential management
 - **SQL Injection Protection:** Parameterized queries via Drizzle ORM
 - **HTTPS Enforced:** Secure communication in production
 - **No-Cache Headers:** Prevent stale data issues
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License

MIT License - see [LICENSE](#) file for details

Acknowledgments

- Built with [Shadcn UI](#) for beautiful, accessible components
- Icons by [Lucide](#)

- Database by [Neon](#)
 - Hosted on [Render](#) and [GitHub Pages](#)
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✉️ Support

For issues, feature requests, or questions:

- Open an issue on [GitHub Issues](#)
 - Check existing issues for solutions
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Built for manufacturing teams to track production in real-time 🏭