

MICHIGAN STATE

UNIVERSITY

Beta Presentation

Manufacturing Tracking System

The Capstone Experience

Team Magna

Tim Bodholt
Charlie Cicchella
Zoom Nguyen
Eli Gudeman
Allen Shi
Kaustubh Siriki

Department of Computer Science and Engineering
Michigan State University

Spring 2025



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

Project Overview

- Web application to track factory machines and supply chain materials
- Blockchain technology for transparent processes
- Analytics of supply chain process and anomalies

Team Member's Technical Tasks

Technical Tasks Assigned

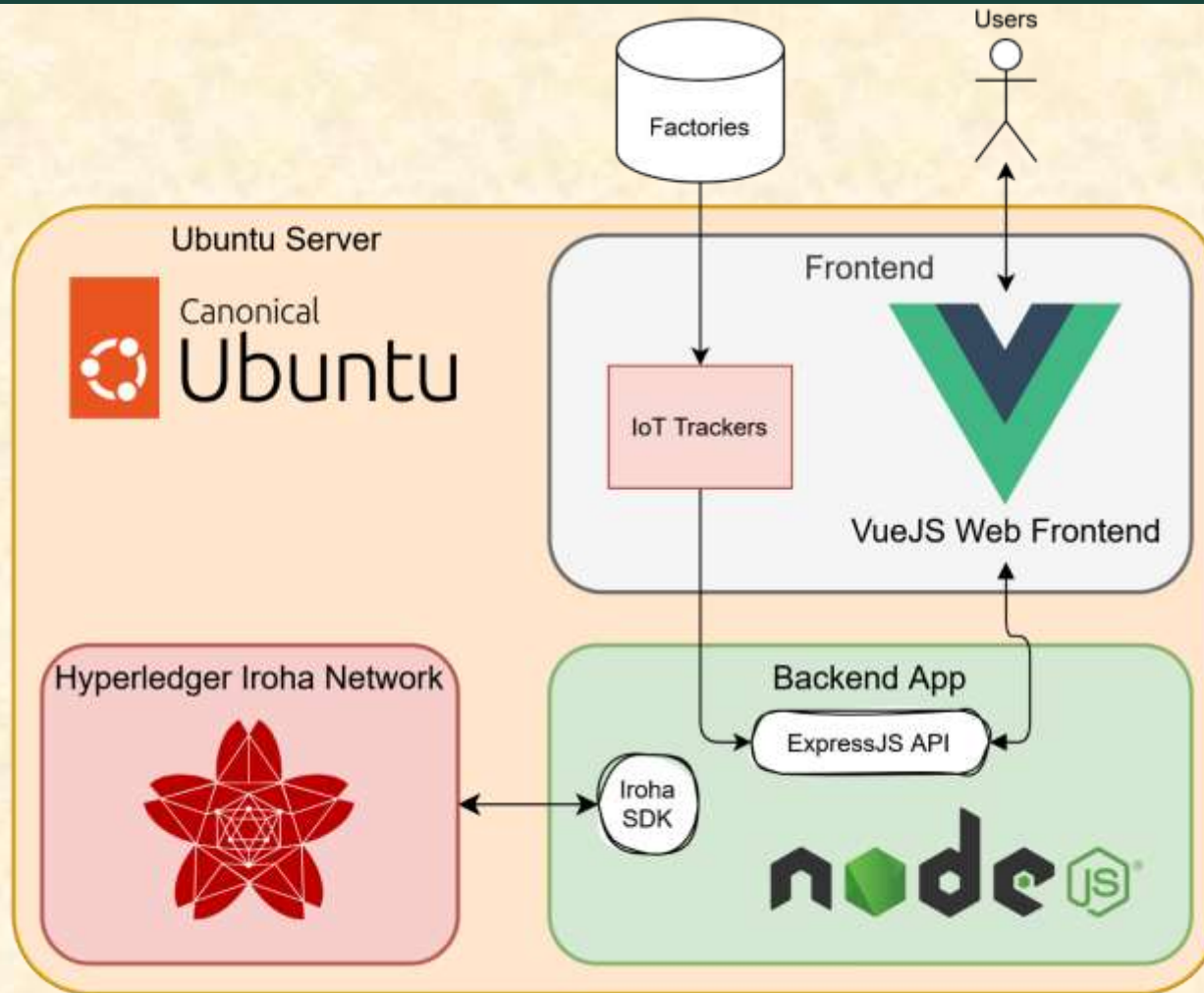
- Charlie Cicchella
 - Dashboard, item lookup components
 - IOT data implementation in frontend, IOT graphs
 - Location and current location API , metadata, mtm
- Eli Gudeman
 - progress tracker and progress tracker window
 - KPI pulling data from ledger for warnings, inbound deliveries, outbound deliveries, and materials processing
 - Location page data pulling up Item card and KPI data cards implemented
- Zoom Nguyen
 - Sustainability metrics, generate IoT Data, parsed materials jsons
 - Pass ledger data to Inventory page. Materials/Schedules route
 - Add Batchlog to navbar, Locations page frame, KPI warnings color
- Allen Shi
 - Item and Aggregate Card
 - Connect dashboard with backend
 - Batch History Page
- Kaustubh Siriki
 - Search, filter, anomaly, and IoT editing
 - Factory displays and shipping page
 - Materials script with anomalies
- Tim Bodholt
 - Connect Hyperledger to Nodejs backend via SDK
 - Implement Asset, Location, Anomaly ledger registration
 - Ledger asset and transaction history through API

Technical Tasks Completed

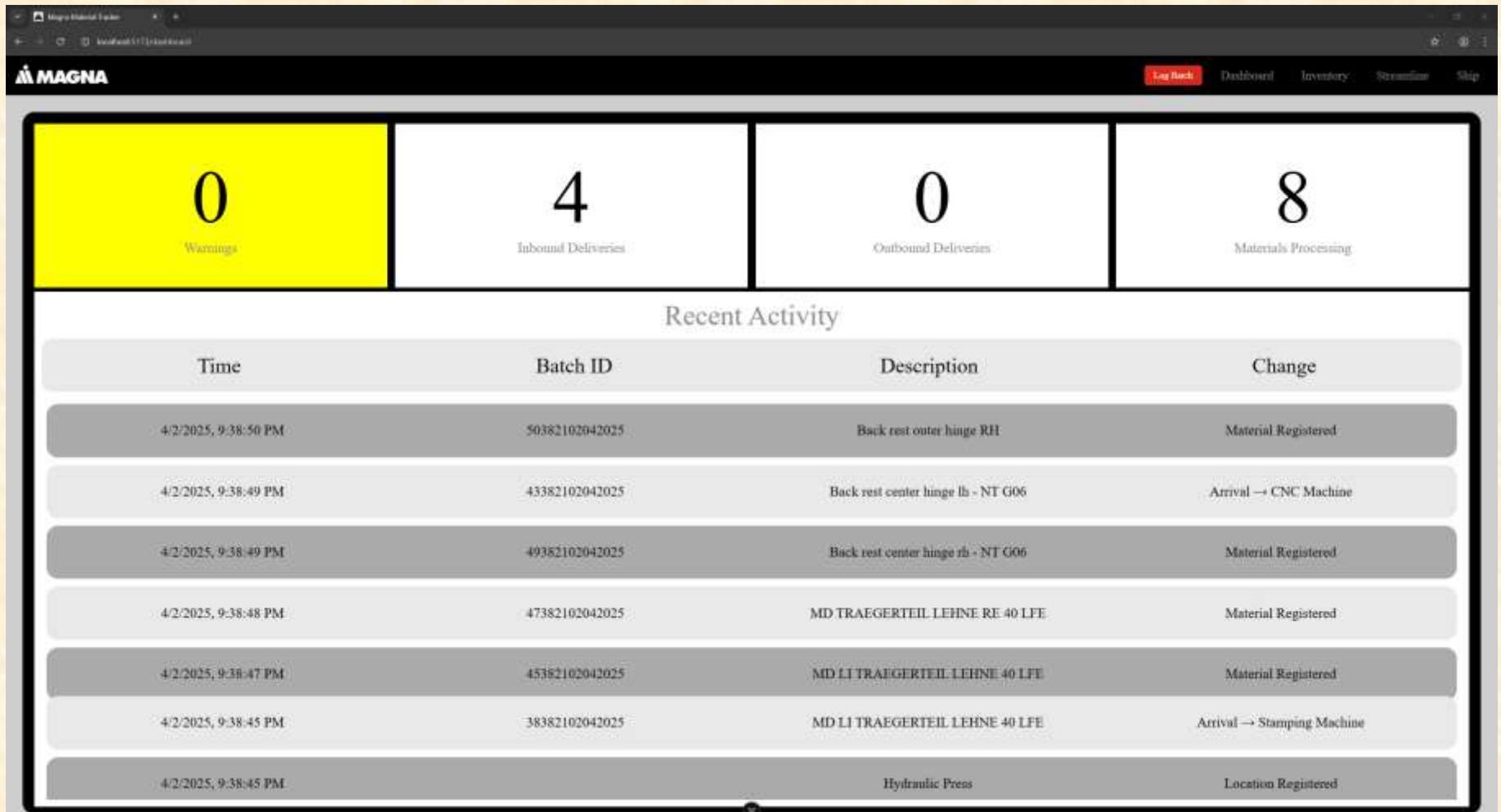
- Charlie Cicchella
 - Dashboard, item lookup components
 - IOT data implementation in frontend, IOT graphs
 - Location and current location API , metadata, mtm
- Eli Gudeman
 - progress tracker and progress tracker window
 - KPI pulling data from ledger for warnings, inbound deliveries, outbound deliveries, and materials processing
 - Location page data pulling up Item card and KPI data cards implemented
- Zoom Nguyen
 - Sustainability metrics, generate IoT Data, parsed materials jsons
 - Pass ledger data to Inventory page. Materials/Schedules route
 - Add Batchlog to navbar, Locations page frame, KPI warnings color
- Allen Shi
 - Item and Aggregate Card
 - Connect dashboard with backend
 - Batch History Page
- Kaustubh Siriki
 - Search, filter, anomaly, and IoT editing
 - Factory displays and shipping page
 - Materials script with anomalies
- Tim Bodholt
 - Connect Hyperledger to Nodejs backend via SDK
 - Implement Asset, Location, Anomaly ledger registration
 - Ledger asset and transaction history through API



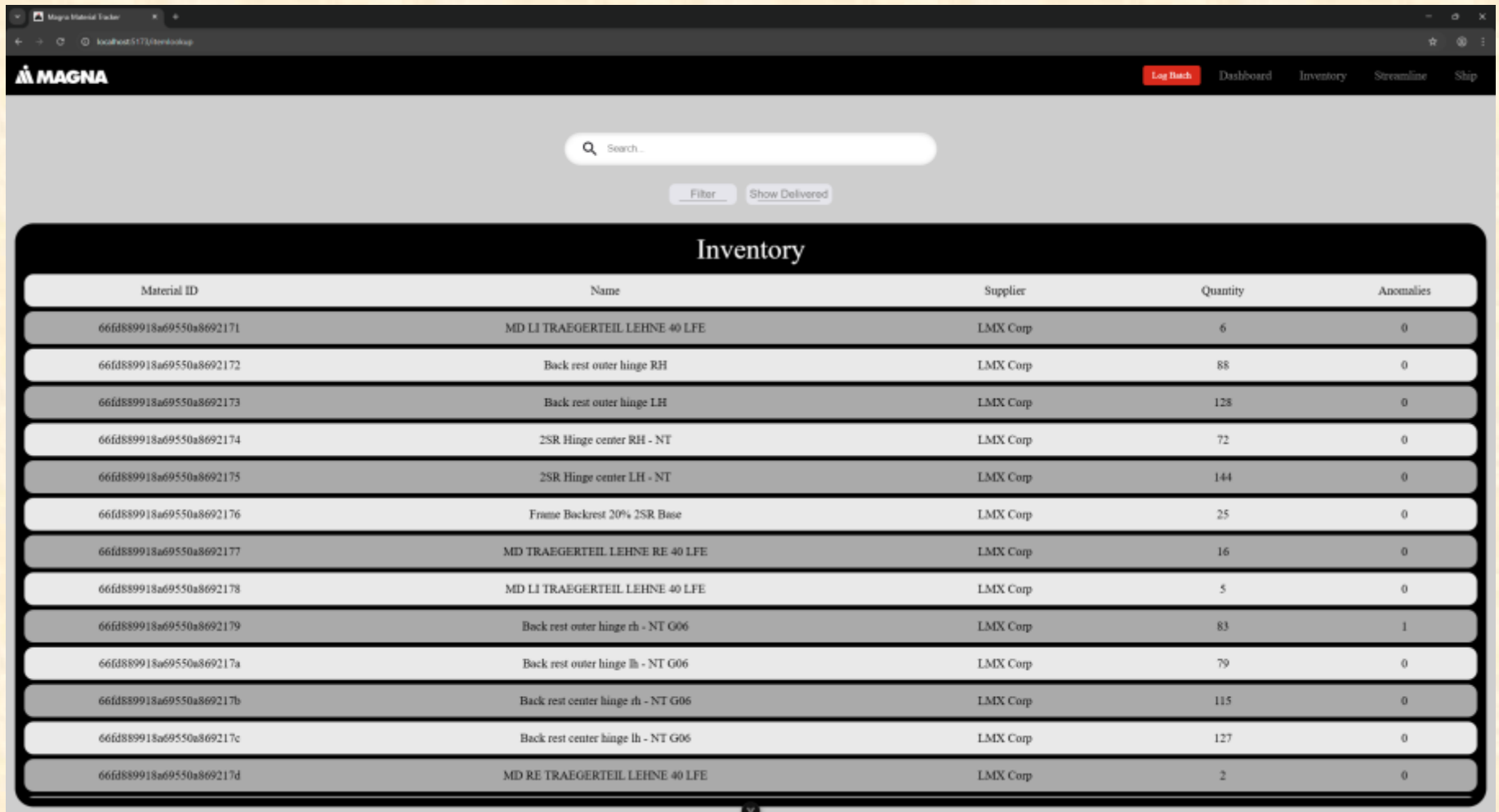
System Architecture



Dashboard



Item Lookup



The screenshot displays the Magna Material Tracker web application. The interface includes a search bar, filter options, and a table of inventory items. The table has five columns: Material ID, Name, Supplier, Quantity, and Anomalies. The data is as follows:

Material ID	Name	Supplier	Quantity	Anomalies
66fd889918a69550a8692171	MD LJ TRAEGERTEIL LEHNE 40 LFE	LMX Corp	6	0
66fd889918a69550a8692172	Back rest outer hinge RH	LMX Corp	88	0
66fd889918a69550a8692173	Back rest outer hinge LH	LMX Corp	128	0
66fd889918a69550a8692174	2SR Hinge center RH - NT	LMX Corp	72	0
66fd889918a69550a8692175	2SR Hinge center LH - NT	LMX Corp	144	0
66fd889918a69550a8692176	Frame Backrest 20% 2SR Base	LMX Corp	25	0
66fd889918a69550a8692177	MD TRAEGERTEIL LEHNE RE 40 LFE	LMX Corp	16	0
66fd889918a69550a8692178	MD LJ TRAEGERTEIL LEHNE 40 LFE	LMX Corp	5	0
66fd889918a69550a8692179	Back rest outer hinge rh - NT G06	LMX Corp	83	1
66fd889918a69550a869217a	Back rest outer hinge lh - NT G06	LMX Corp	79	0
66fd889918a69550a869217b	Back rest center hinge rh - NT G06	LMX Corp	115	0
66fd889918a69550a869217c	Back rest center hinge lh - NT G06	LMX Corp	127	0
66fd889918a69550a869217d	MD RE TRAEGERTEIL LEHNE 40 LFE	LMX Corp	2	0

Item Card

The screenshot displays the Magna Material Explorer interface. At the top, there is a search bar and navigation links for 'Log Back', 'Dashboard', 'Inventory', 'Streamline', and 'Ship'. Below the search bar are 'Filter' and 'Show Delivered' buttons. The main content area is titled 'Inventory' and contains a table with columns for Material ID, Supplier, Quantity, and Anomalies. A modal window is open over the table, displaying detailed information for the item 'MD LI TRAEGERTEIL LEHNE 40 LFE'. The modal includes a 'View Full History' button and a process flow diagram with three stages: 'Arrival' (red circle), 'Assembly' (red circle), and 'Delivered' (grey circle). Below the diagram are buttons for 'Overview', 'Anomalies', 'Temperature', 'Humidity', and 'Assess'.

Material ID	Supplier	Quantity	Anomalies
66fd889918a69550a8692171	LMX Corp	6	0
66fd889918a69550a8692172	LMX Corp	88	0
66fd889918a69550a8692173	LMX Corp	128	0
66fd889918a69550a8692174	LMX Corp	72	0
66fd889918a69550a8692175	LMX Corp	144	0
66fd889918a69550a8692176	LMX Corp	25	0
66fd889918a69550a8692177	LMX Corp	16	0
66fd889918a69550a8692178	LMX Corp	5	0
66fd889918a69550a8692179	LMX Corp	83	1
66fd889918a69550a869217a	LMX Corp	79	0
66fd889918a69550a869217b	LMX Corp	115	0
66fd889918a69550a869217c	LMX Corp	127	0
66fd889918a69550a869217d	LMX Corp	2	0

History

Batch History for 66fd889918a69550a8692171:45382102042025

Filter History
 Show Assemblies Show Movements

- 4/2/2023, 9:59:18 PM
Update Type: CurrentLocation
New Location: Shipping Deck
- 4/2/2023, 9:59:18 PM
Update Type: LastMovement
Moved from Robot Arm - Shipping Deck
- 4/2/2023, 9:59:42 PM
Update Type: CurrentLocation
New Location: Robot Arm
- 4/2/2023, 9:59:42 PM
Update Type: LastMovement
Moved from CNC Machine - Robot Arm
- 4/2/2023, 9:59:56 PM
Update Type: CurrentLocation
New Location: CNC Machine
- 4/2/2023, 9:59:28 PM
Update Type: LastMovement
Moved from Hydraulic Press - CNC Machine
- 4/2/2023, 9:58:53 PM
Update Type: CurrentLocation
New Location: Hydraulic Press
- 4/2/2023, 9:58:53 PM
Update Type: LastMovement
Moved from Arrival - Hydraulic Press
- 4/2/2023, 9:58:47 PM
Update Type: Register
Initial registration



What's left to do?

- Stretch Goal
 - PDF reports for history and sustainability
 - Mobile app layout
 - AI chatbot, recommendations
- Other Tasks
 - Improve UI responsiveness
 - UI styling consistency
 - Package app to deliver to Magna



Questions?

?

?

?

?

?

?

?

?

?

