

MICHIGAN STATE

UNIVERSITY

Beta Presentation

3D Model for Factory Digital Twin

The Capstone Experience

Team Magna

Logan Gillis
Cody Girard
Gabe Kubiak
Joey Vesche
Jacob Yax

Department of Computer Science and Engineering
Michigan State University

Spring 2024



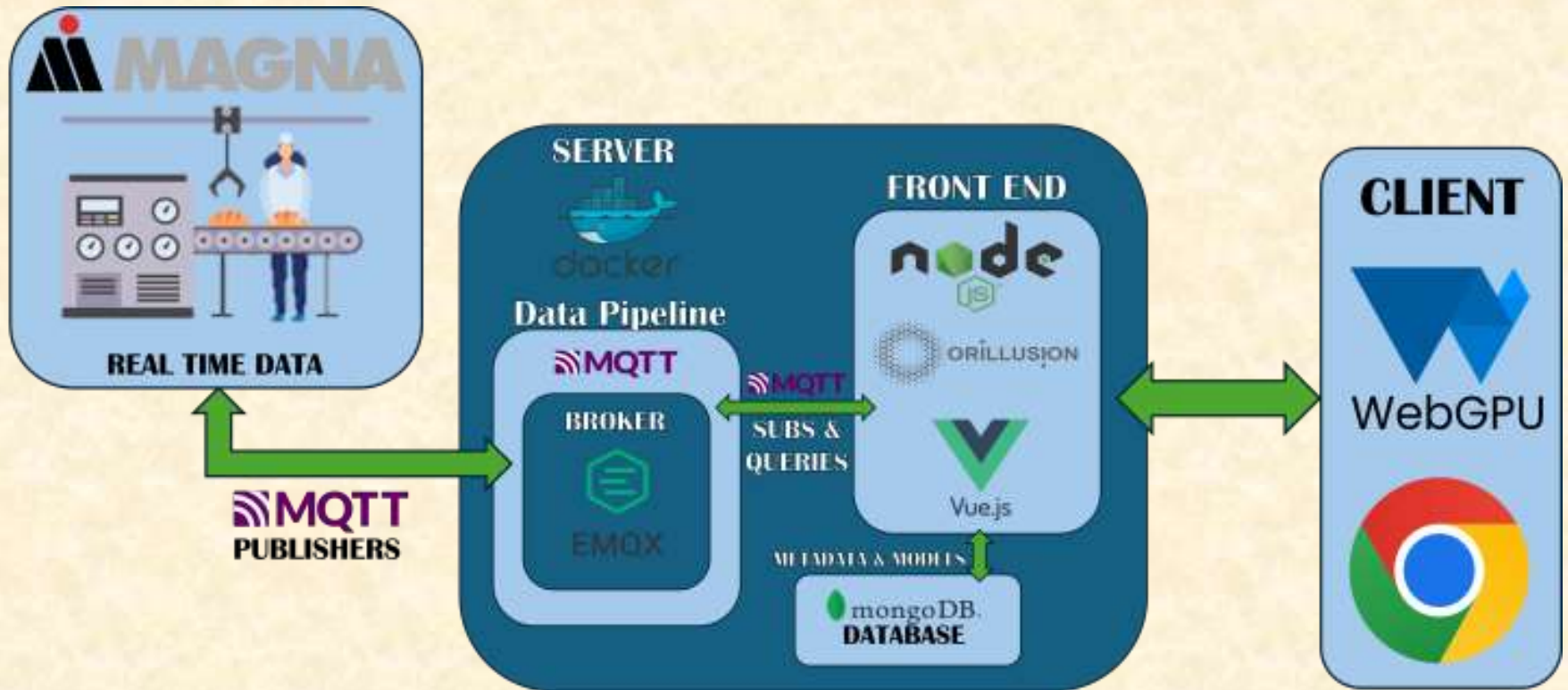
*From Students...
...to Professionals*

Project Overview

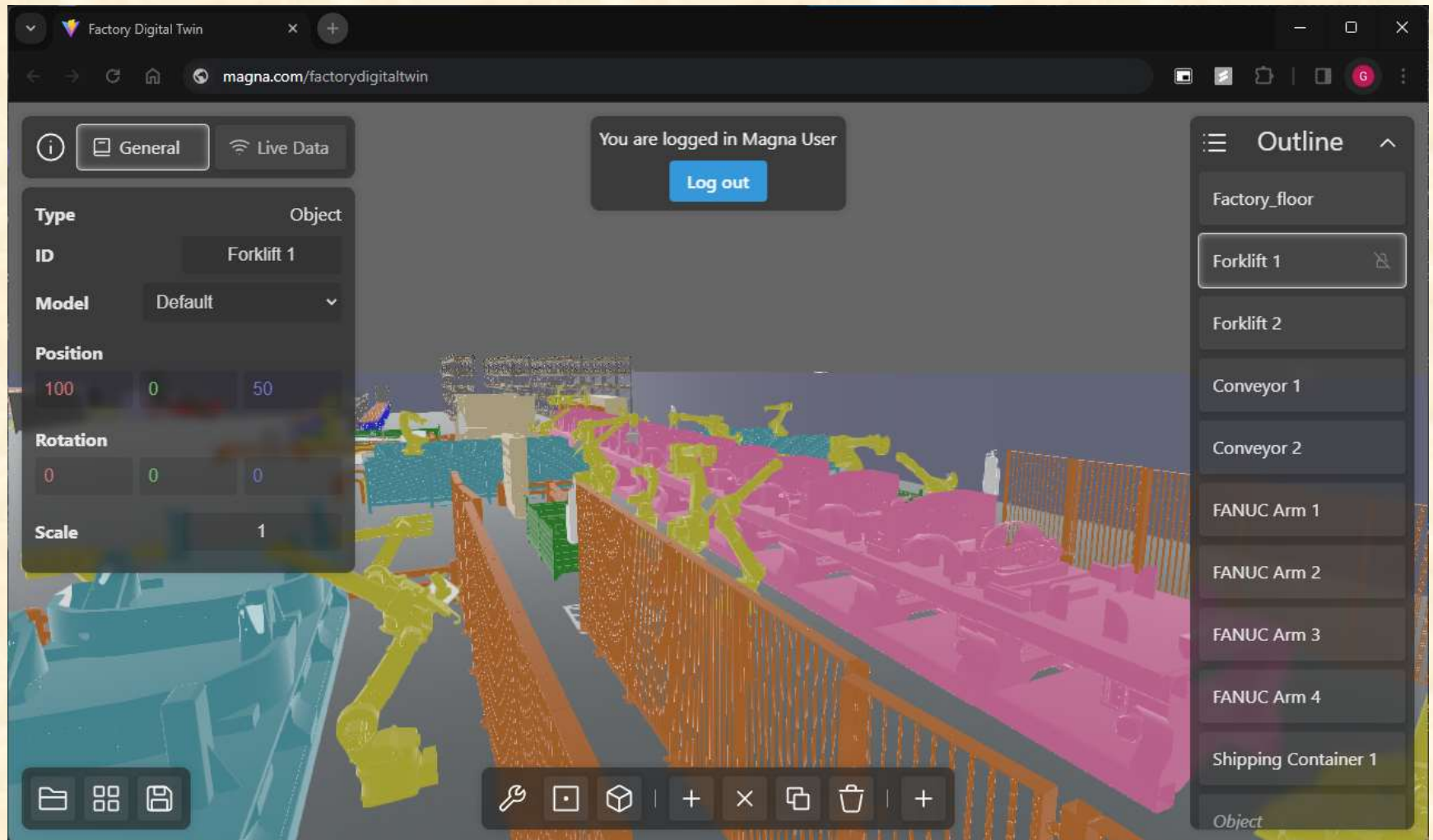
- Live Data 3D Model of Factory
- Display Real-Time Updates of Sensors
- Quickly View Factory and Find Issues Effectively
- Create Generalized Solution to allow for expansion & Scaling



System Architecture



Standard Edit Mode



Live Data Feed Simulator

The screenshot shows a web browser window titled "Factory Digital Twin" at the URL "magna.co/factorydigitaltwin". The interface includes a "General" tab and a "Live Data" toggle. A notification states "You are logged in Magna User" with a "Log out" button. An "Outline" panel on the right shows a hierarchy: "Factory Floor" > "Boiler".

The "LiveData Simulator" window is open, displaying a grid of 10 "Thing" assets. Each asset has an "Asset ID", a "Synced" status (indicated by a green checkmark), and a "Run Animation" button. The assets are arranged in three rows: the first row contains Asset IDs 0, 1, 2, and 3; the second row contains 4, 5, 6, and 7; the third row contains 8 and 9.

At the bottom of the simulator window, there are buttons for "Animate All", "Reset/Update All", "Load from file...", and "Save".

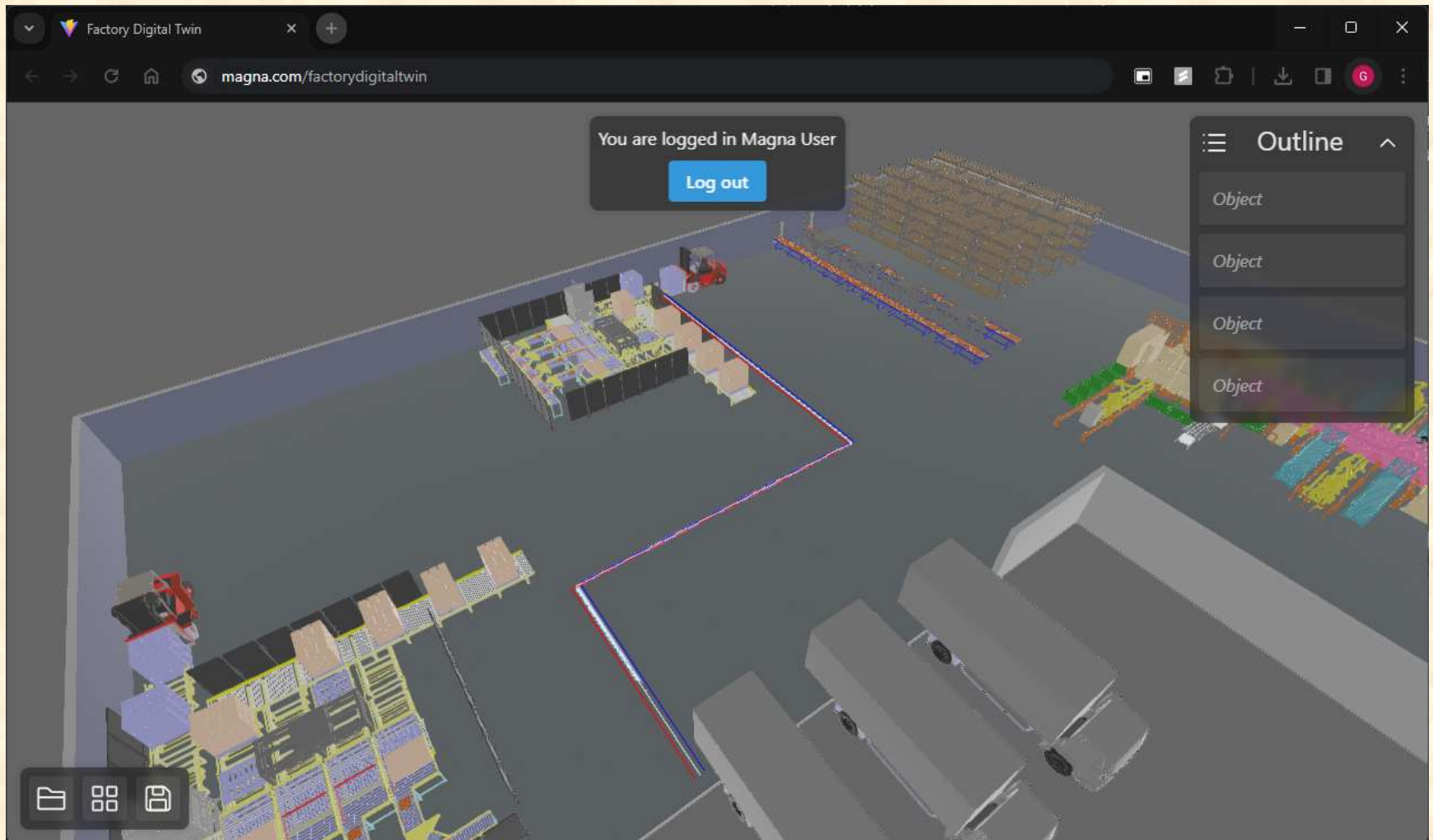
On the right side of the simulator window, there is a table with the following columns and rows:

NAME
id: 0
x: 0
y: 0
z: 0
rot_x: 0
rot_y: 0
rot_z: 0
temp: 25
voltage: 12
qty: 0
qty_MAX: 10

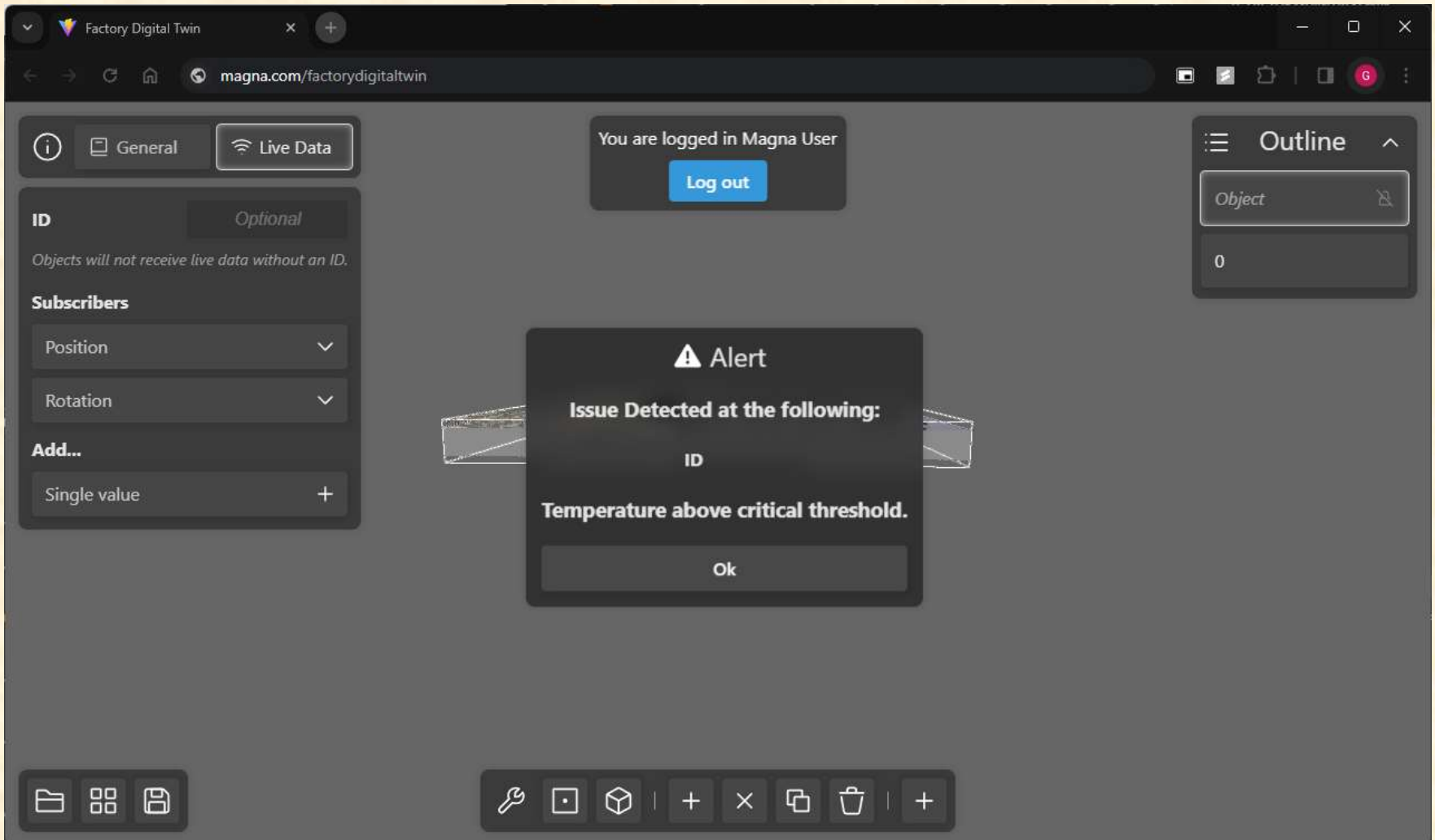
Below the table are "Update" and "Edit Animation" buttons.



View Mode & Line Pathing



Live Alerts



What's left to do?

- Stretch Goals
 - Layer views
 - Graphs for visual history?
 - CDN for faster load times?
- Other Tasks
 - Concurrent User Sessions
 - Server Deployment (CI/CD)
 - Generalization
 - Changes to UI elements
 - QA Testing



Questions?

?

?

?

?

?

?

?

?

?

