

# Team 31: ME Scheduling Software

Engineering Release Review

# Overview

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# Objective

1. Finish the web utility we were given so that its functional and allows students to make reservations for machines using billing codes.
  - Authenticate UI students and faculty.
  - Additionally, the interface should be visually appealing and easy to understand how to use it.

# Value Proposition

- For engineering students, having access to machines to complete assignments is important. What can become difficult is when students don't know when they can use machines or if machines are currently being used. The problem is students need to physically go into the machine shop to see what machines are being used or if they are available.
- We plan to have a fully functional web interface where ME students can easily schedule times to use equipment. The webpage should be easy to understand and have no problems working for the next couple of years.

# Background and Requirements

- The web utility will allow students to make reservations for machines with billing codes and allow administrators to manage billing codes and perform other administrative tasks as needed.
- The lifetime of the web utility will be long term without requiring any maintenance or updates on the administrative end.
- The web utility will be able to control the power state of machines based on reservations made by the user through the use of external hardware, software, or both.
- The web utility will be user friendly and intuitive in design.

# Key Design Attributes

- Reservation System
  - Web interface and database interaction
- User Registration and Authentication
  - Handled by Auth0 service
- Admin Tools
  - Handled by Auth0 service
  - User role assignment and blocking functionality
  - Billing codes and usage reports

# Previous Software and Platforms



# Previous Design

The screenshot shows a web browser window with the URL `me-machineshop.herokuapp.com/areserve`. The page title is "Machine Shop". A modal dialog box is open, displaying the message "me-machineshop.herokuapp.com says Not a valid reservation time." with "Cancel" and "OK" buttons. The main content area is titled "Step 1. Reserve Time on a Machine" and includes instructions: "Click and drag on the calendar to reserve time on a given machine below. You may only make one reservation at a time." Below the instructions is a calendar for "Oct 1, 2020" with tabs for "Day", "Week", and "Month". The calendar grid shows machines listed on the left: "Lathe 1 (GJ 102)", "Computer", "3D Printer", "Remote Login PC", and "Sindoh #1". The time slots range from 12am to 5pm. A blue square is visible in the 5am slot for the "Lathe 1 (GJ 102)" machine. Below the calendar is "Step 2. Reservation Information" with a "Billing Code\*" field containing the number "1" and a red "RESERVE" button.

The screenshot shows a login page with a "BACK TO HOME" link at the top left. There are three login sections, each with "E-mail:" and "Password:" labels and input fields. The first section is "Admin Login:" with email `admin@uidaho.edu` and password `password`. The second section is "Graduate Login:" with email `grad@uidaho.edu` and password `password`. The third section is "Undergraduate Login:" with email `undergrad@uidaho.edu` and password `password`. A "LOGIN" button is positioned to the right of the Graduate and Undergraduate login sections.



# New Software and Platforms



- Auth0 provides our platform with Authentication and Authorization.
- This way we can determine who users are and what they should have access to: (I.e Undergrad Student or Admin Access) in a User-Friendly environment.

Authentication	Authorization
Determines whether users are who they claim to be	Determines what users can and cannot access
Challenges the user to validate credentials (for example, through passwords, answers to security questions, or facial recognition)	Verifies whether access is allowed through policies and rules
Usually done before authorization	Usually done after successful authentication
Generally, transmits info through an ID Token	Generally, transmits info through an <u>Access Token</u>
Generally governed by the <u>OpenID Connect (OIDC) protocol</u>	Generally governed by the OAuth 2.0 framework
Example: Employees in a company are required to authenticate through the network before accessing their company email	Example: After an employee successfully authenticates, the system determines what information the employees are allowed to access

In short, access to a resource is protected by both authentication and authorization. If you can't prove your identity, you won't be allowed into a resource. And even if you can prove your identity, if you are not authorized for that resource, you will still be denied access.



# Auth0

## Users and Roles







- Using the Auth0 Dashboard this will provide an easy way to manage users for the long-term lifetime of this project
- Ability to customize roles for accounts to allow them access to Admin tools / specific pages on the website.

### Users

[+ CREATE USER](#)

An easy to use UI to help administrators manage user identities including password resets, creating and provisioning, blocking and deleting users. [Learn more ▶](#)



Q Search for users Search by User X RESET

Name	Connection	Logins	Latest Login ↓	
 <a href="#">paul7412@vandals.uidaho.edu</a> paul7412@vandals.uidaho.edu	Username-Password-Authentica...	2	19 hours ago	
 <a href="#">tan4442@vandals.uidaho.edu</a> tan4442@vandals.uidaho.edu	Username-Password-Authentica...	1	a day ago	
 <a href="#">petr8004@vandals.uidaho.edu</a> petr8004@vandals.uidaho.edu	Username-Password-Authentica...	5	13 days ago	

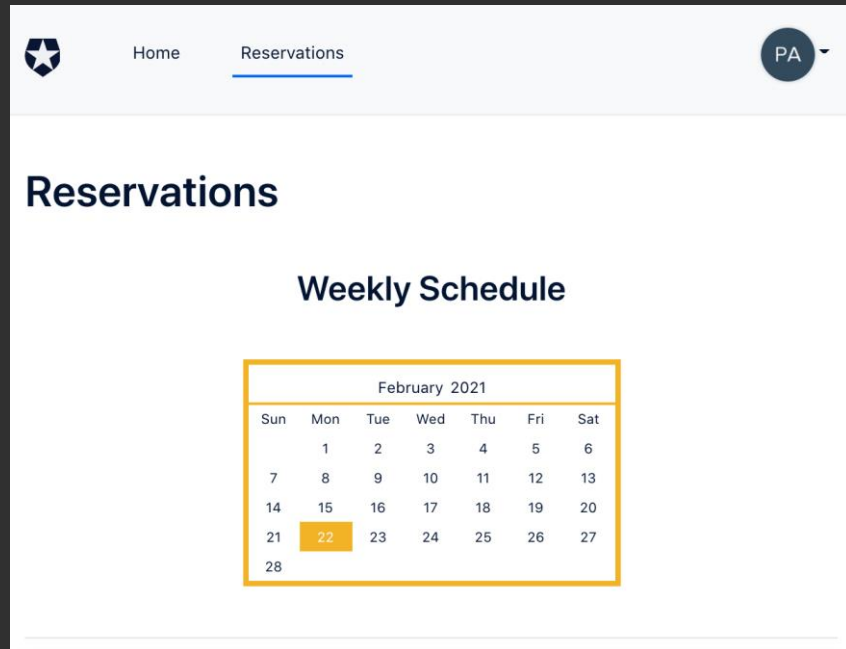
### Roles

[+ CREATE ROLE](#)

Create and manage Roles for your applications. Roles contain collections of Permissions and can be assigned to Users.

Name	Description	
<a href="#">Admin</a>	Has ability to edit the website	
<a href="#">Graduate Student</a>	Graduate Student	

# New Design – Feel free to add more slides with what you guys have been working on!

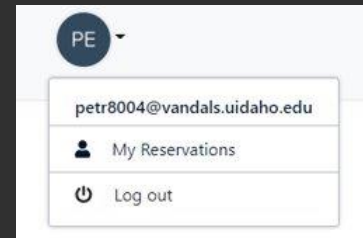


Home Reservations PA

## Reservations

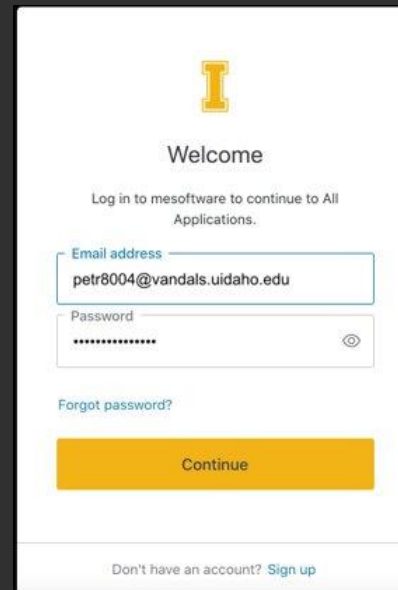
### Weekly Schedule

February 2021						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28						



PE

- petr8004@vandals.uidaho.edu
- My Reservations
- Log out



## Welcome

Log in to mesoftware to continue to All Applications.

Email address  
petr8004@vandals.uidaho.edu

Password  
\*\*\*\*\*

[Forgot password?](#)

Continue

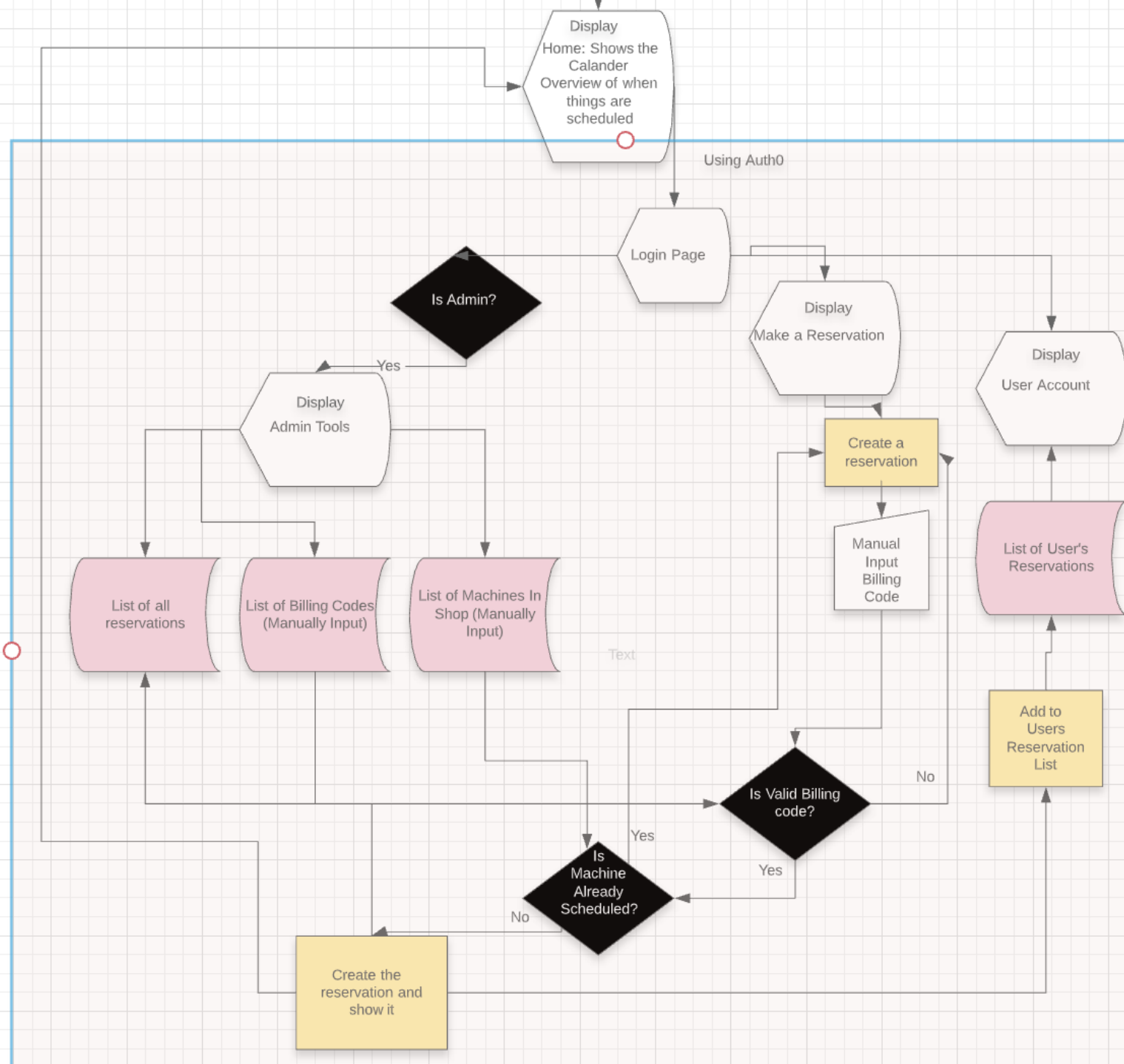
Don't have an account? [Sign up](#)

# Where are we in our progress

Customer Requirement	Is it finished	Expected Finish Data
Deployment	No	April 15
Authentication	Yes	
Ability to Make Reservations	No	March 1
Ability to Add Biling Code to Reservation	No	March 1
Admin Edit Machine List	No	Feb 28
Admin Edit Reservations	No	Feb 28
Admin Edit Billing Code	No	Feb 28
Ability to Delete Reservations	No	March 1
Update Website Design to be more User Friendly	Yes	
Ability to Add and Delete Users	Yes	

# How it Works

- Mern Stack: JavaScript Stack & Most popular full-stack web configuration for React Framework.
- MongoDB (Database) Express (Framework)
- React (Framework & JavaScript Library)
- Node.js (JavaScript Environment)
- Material UI (User Interface)
- React - Big-Scheduler (Scheduler for React)
- Material Table (Data Table) Mongoose (Used with MongoDB)
- Auth0 (Handles the User Authentication and Account Management)



# Manufacturing Plan

- Make vs Buy Analysis – Since this project can be designed and implemented for free, it is worth it for us to make it rather than buy it. Buying software is expensive and not catered to exactly what we need.
- Sourcing – We are leveraging Node.js, React, Auth0, and MongoDB as sourcing components to construct our project.
- Location (or process) – This website to be published on Uldaho servers. The process will be to integrate the sourcing components to complete the software, communicate with Victor House, and publish it on the server.
- Who – Our senior capstone subMerge team will have this up and running and available for use before the project expo.
- Cost – None

# Design Validation Approach

- Only users with Uldaho emails should be able to create accounts
- Multiple users should be able to use the website concurrently
- Users should be able to view their schedule
- Admins should have control of billing codes and admin tasks
- User login credentials should be stored securely
- Website should function indefinitely without updates

# Potential Risks

- Misuse of website by external parties
  - Only allow users with UIdaho emails to use the service
  - Blocked/Read-only status utility for admins
- Free or Open-Source platforms becoming Pay to Use.
- Authentication and Encryption



# Project Schedule and Budget

- Project Schedule:
- **3/1** - Ability to create and save reservations, have good feedback when making reservations, have UI branding, visually show reservations on the calendar, change status of user to view only/blocked.
- **3/9** - Snapshot Day 3
- **3/15** - Put website on UI server.
- **4/29-4/30** - Project Expo



Questions?