

## **Sprint 5 Report**

Presented by: Logan Crowe, Trevor Hamilton, Ayden Martin, David Cowles

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### **Intended Progress**

- Polish database code and make changes as needed
- Finalize server communication protocols with Branch & Leaf
- Integrate API, Database, and Mesh Network
- Test full prototype

### **Progress Reflection**

- Added type hints and docstrings to database code
- Updated the database to add support for workcenter IP addresses
- Learned about new API
- Tested communication with Branch & Leaf over generated wifi network.

### **Problems Encountered**

During this sprint, we discovered that the Plex Developer Portal, which we had been using for our project, was severely limited in its capabilities, which made fulfilling some of our client's goals difficult or impossible. Specifically, we were unable to update the status of workcenters or update scrap parts. We had done some replanning in order to compensate for this issue, but after learning about the correct API during a meeting with the clients IT team on the 13th we had to search through it and consider possibilities and potential issues. After searching the API and meeting with Branch & Leaf on the 16th we sent a list of questions and workflow expectations to our client. Our client responded to our questions during a phone call on the 19th, and described several new expectations that were contrary to what had been described previously.

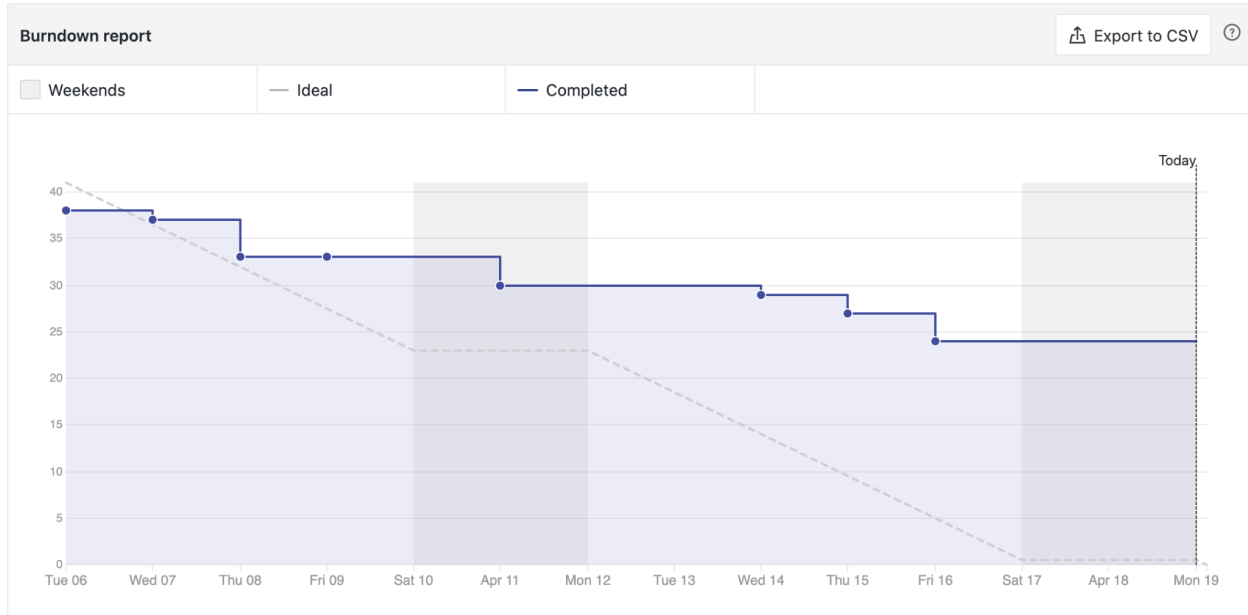
Additionally, we are now waiting for credentials to access the new API and permissions for the specific resources we might need to try. Unfortunately the new API has no documentation so we may need to try multiple different data sources once we get access. We searched the API and requested access to the resources that we might need, but if they don't work we may need to request more.

### **Projected Progress**

Despite the Data Source API being more difficult to understand than the Developer Portal, we are doing our best to integrate it into our project in the little time we have left. We still need to streamline our project and remove pieces that are no longer necessary. Additionally, we will need to extensively document our project for future teams to work on in case we cannot complete the project the way the client wants it.

### **Burndown Chart**

Note: Many of our stories weren't turned in this sprint because they either put on hold or discarded.



## Teamwork Reflections

**Trevor** - Most of our issues for this sprint were centered around routing and API troubles, but I was able to work with the rest of the team to improve the database. In the beginning of the sprint, I changed the database to account for the team's need to store workcenter IP addresses, and added methods to make switching between workcenter IDs and IP addresses easier. I also added a method that returns all rows in a table so that another team member would be able to check each IP address to see if they were still active. Later in the sprint, I added type hints and documentation to my database code in hopes of making it more understandable to our client and anyone else who may use the code in the future.

**David** - Most of my work this sprint was intangible, talking with the client and members of both teams in order to make sure everyone was on the same page in addition to attending meetings with both teams to run tests. We've reached a point in the project where there is little more to be done until we get access to the new API data sources. I did a significant amount of the work for the sprint deliverables in order to make up for my lack of concrete project related deliverables.

**Logan** - My focus this sprint was setting up our Wifi capabilities and testing those with our server program so that our combined groups could do testing with all of our various pieces of hardware. I was able to get a Pi to function as a Wifi AP, a DHCP/DNS server, and still run our Database server program with little noticeable lag. This might not be true once we have real data to test but it's been proven technically feasible to have this capability on one device. Which leads to the big issue with this sprint and if we're being honest, the whole project, which is namely: access. We keep finding out that we either don't have it or have the wrong kind, over and over and it's definitely going to affect our end product. Beyond my frustration with that aspect, I think this was a good sprint overall if only because our groups were finally able to work together in person and accomplish some much needed testing and brainstorming.

**Ayden** - I worked on some of the networking to facilitate communication between Root and B&L. I created an initialization method that we will use when a Leaf Pi is initially setup with a workstation, this sends stuff like Workstation ID and Wheel diameter of machine over if needed, so we can get some data into our database and then dynamically connect the leaf IP address with the workstation. Created a method to check to see if Leaf nodes were still online that works by pinging all IP addresses that are currently in our database. This sprint has been the most productive sprint by far so far, but it has also been the sprint with the biggest amount of issues that cropped up.

## **Conclusion**

Our overall productivity at this point is hard for even us to gauge, we are potentially nearing the end of our project but given the amount of time we've been working there isn't much concrete to show for it. Our hardware and connection with the mesh network seems to work correctly. However if we can get access to the new API in a timely manner we might be able to deliver something similar to what we think the client wants. We weren't able to do much over the past two sprints because we weren't sure exactly what we needed to accomplish, and we're still somewhat in that position. However over the next week we will try our best to document our project while waiting for the API's.