

EE/CprE/SE 492 BIWEEKLY REPORT #3

02/10/2018-02/23/2018

Group: *sdmay18-32*

Project title: *Machine Learning / AI / Big Data Analytics*

Client &/Advisor: *Danfoss*

Team Members

- Smriti Manral — Lead Test Engineer / Test Designer
 - Derek Bruun — Embedded Systems Lead / Hardware Integrations
 - Victoria Rasavanh — Communications Lead / Webmaster
 - Brian Lindsay — Software Integrations Lead / Dev Tools Manager
 - Jess Walters — Lead Architect / Tech Lead
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Summary

This period resulted in a deeper dive into the analytics of our data and our machine learning approach. Through Smriti's and Tej's analytics, it was brought up that our system is mainly capable of monitoring line worker productivity, rather than being able to predict machine maintenance. Moreover, the team also got to meet with a Danfoss worker who had worked with machine learning. He suggested we keep our model as simple as possible (simply looking at best fit curves, benchmarking alerts based on counting sigmas, etc.).

Pending Issues

It has come to our attention that timestamp data and deltas may not be enough to predict the necessity of machine maintenance; rather, our system thus far will simply be monitoring approximate productivity of the assembly line workers. Furthermore, it was

Contributions

Name	Contribution(s) this Period	Hours this Period	Cumulative Hours
Derek Bruun	Research into an independent, application login system using Ignition to be used for application administration. Practice for PIRM #1.	5	56.5
Brian Lindsay	Presentation work, assisting Ignition research.	5	55
Smriti Manral	Continued working with Tej on analysis of the dataset, and came up with key insights about limitations of our timestamp data. Worked getting data compatible with Tensorflow.	8.5	54
Victoria Rasavanh	Worked on alterations to the Ignition Dashboard to make it closer to a newer, refactored design. Practiced for PIRM #1.	5	57
Jess Walters	Database migrations and backups, merging test stand schema; related to the R code/analytics that Tej provided to us.	14	75.5

Plans for Next Cycle

- Finish up the first-pass of the learning model to be used with TensorFlow; continue feeding the system test data
- Contact Danfoss to see if specific machine workstation data OTHER than timestamps can be retrieved; if not, then work with Danfoss to officially re-scope. Update design documentation to reflect this.
- Danfoss personnel are currently working toward getting us plugged into the live production system.
- Documentation. Always polishing documentation.