
EE/CprE/SE 492 BI-WEEKLY REPORT 3

2/13 - 2/29

Group number: 32

Project title: Development of a Smart Sensing System for Road Performance Data Collection

Client &/Advisor: PROSPER - Bo Yang & Halil Ceylan

Team Members/Role: Victor Guerra, Ethan Young, Michael Petersen, Shlok Singh

o **Weekly Summary:**

During the last 2 weeks we continued development on the Arduino uno and setup interrupts to determine the sequence of events. We cannot use multi-threading on the Arduino, which is proving to be more difficult than we thought to keep the data collection going. We have also been testing out other transfer protocols than just HTTP to see if they will work better and faster. We have finished the debugging of the fortran to javascript translating as well for the IRI calculation.

o **Past week accomplishments**

- IRI calculation fully functional and debugged
- Added the IRI calculation as a module for the backend server
- Coded a MySQL script to put the IRI calculation and its associated GPS coordinate to the server.
- Arduino data sampling refined, ISR added for implementation of accurate polling rate

o **Pending issues**

- In order to increase the polling rate of the Arduino, additional memory is needed from cleaning up module libraries.
- Need to continue testing with interrupts to maximize efficiency
- The data transfer with the HTTP requests has very little documentation and the provided code is proving pretty weak.
- Writing code to convert tcp packets to sql data

o **Individual contributions**

Name	Individual Contributions	Hours this week	Total Hours
Victor Guerra	IRI Calculation, Arduino Testing	12	101
Ethan Young	IRI Calculation, Arduino Testing	12	105
Michael Petersen	Arduino Testing	12	96
Shlok Singh	Server Preparation/Development	12	98

o **Plans for the upcoming week**

- Find the best solution for the data transfer protocol
- Find the best interrupt solution to maximize efficiency
- Test data sampling and implement data transfer
- Delete more from the libraries as need for more memory space

o **Summary of weekly advisor meeting**

Meeting with Bo, we updated him on our progress so far and showed him the IRI code working. He said we could start testing any time with the Road Roughness vehicle owned by PROSPER as well. This will be a bit longer yet though, as we are still working on the sampling rate with the interrupts. New issues have been identified to calculate road profile from raw accelerometer data.