Project Status Report #1

April 19, 2020

Project Identification

Project Name	Vnomics: Engine RPM Profile Detection
Project Team	Chunlei Zhou, Zichu Li, Haoyuan Dong, Yuan Lu
Project Sponsor	Vnomics
Team Drive Link	**https://bitbucket.org/vnomics/university_of_rochester_projects/src/master/**

Vision & Goal Summary

- Our vision is to use the RPM profile for coaching on driving behavior to save fuel.
- Our goals:
  1. Develop algorithms to detect HighRPM and MaxRPM
  2. Create routines for statistical analysis to evaluate accuracy of detection.
  3. Analyze the relationship between driving score and RPM profile.

Major Milestones & Updated Status

Milestone	Original Date	Status & Date
Milestone 1: Met with sponsor and gathered requirement	2/14/2020	Completed -2/14/2020
Milestone 2: Made initial plan of the modeling	2/14/2020	Completed -2/14/2020
Milestone 3: Assigned team work	2/14/2020	Completed -2/14/2020
Milestone 4: Developed algorithms for the models	2/21/2020	Completed -2/21/2020
Milestone 5: Implemented the models	2/28/2020	Completed -2/28/2020
Milestone 6: Completed project charter	3/06/2020	Completed -3/06/2020
Milestone 7: Analyzed model results	3/13/2020	Completed -3/13/2020
Milestone 8: Delivered midterm presentation	3/30/2020	Completed -3/30/2020
Milestone 9: Model improvement	3/27/2020	In Progress Note: This will be our continuous effort until the end of this semester. Therefore, the original date has been changed to 5/06/2020.
Milestone10: Prepared project progress report	4/19/2020	Completed -4/19/2020
Milestone11: Performed statistical analysis	4/12/2020	In Progress Note: This will be our continuous effort until the end of this semester. Therefore, the original date has been changed to 5/06/2020.
Milestone12: Prepared project report #2	4/19/2020	Cancelled due to class change

Milestone13: Prepared final project presentation	4/19/2020	In Progress
Milestone14: Prepared final project report	5/06/2020	In Progress

Deliverable Progress

- Gathered requirements, initialized plans of modeling, and assigned team work
- Developed and implemented algorithms for the models
- Analyzed model results and improved algorithm by avoiding overfitting and tuning parameters
- Completed testing on new dataset provided by sponsor
- Discussed feedback with the sponsor and specified next steps
- Team meeting with sponsor on Friday every two weeks

Plan for Upcoming Deliverables

- Complete final presentation slides by April 20, 2020
- Compare and combine two approaches for best prediction by April 20, 2020
- Finalize API and README file for better readability by May 06, 2020
- Wrap up project and deliver final report to sponsor by May 06, 2020

Risks & Opportunities

Risk	Mitigation
Team disengagement	Establish small, frequent deadlines (dependencies) to promote consistent cooperation
Late deliverables	Delegate tasks, create early “soft” deadlines (prior to actual) to allow flexibility
Misunderstanding of the requirements	Produce a comprehensive scope document and project criterion, then confirm the details with the sponsor.
Software environment conflict	All team members program in the same virtual environment to ensure the consistency of final codes.
Failure of success criteria	Iterate experiments based on the previous result, tune the hyperparameters until getting satisfied results.

Opportunities	Significance
Encapsulate RPM detection API	Determining the solid RPM detection models, and encapsulating the models into API in order to facilitate the application of the models.
Prospective	Establishing response system to optimize the weights of driving scores

Baseline-to-Actual: Budget Comparison

Milestone Name	Budget Hours	
	Projected	Actual
Milestone 1: Met with sponsor and gathered requirement	8	10
Milestone 2: Made initial plan of the modeling	4	4
Milestone 3: Assigned team work	4	4
Milestone 4: Developed algorithm for the models	30	32

Milestone 5: Implemented the models	32	48
Milestone 6: Completed project charter	4	4
Milestone 7: Analyzed model results	40	50
Milestone 8: Delivered midterm presentation	8	8
Milestone 9: Model improvement	12	--
Milestone10: Prepared project progress report	4	4
Milestone11: Performed statistical analysis	20	--
Milestone12: Prepared project report #2	N/A	N/A
Milestone13: Prepared final project presentation	10	--
Milestone14: Prepared final project report	32	--

Upcoming Meetings and Presentations

- Monday, April 20, 2020 → Final Presentation
- Friday, May 1, 2020 → Team Meeting with sponsor

Current Project Assessment

Although class agenda has been changed due to coronavirus, we are currently still on track to complete the project on schedule. No adjustment other than the deadlines designated by the class schedule is needed. Our team members were able to meet in class with Dr. Ajay Anand and on Fridays with our sponsor (Lloyd from Vnomics) for team meetings to discuss project progress. Every member of our team has been actively engaged in designing/implementing the algorithms, and updating the progress within the team and with our sponsor. Our instant communication with Dr. Ajay Anand and Lloyd from Vnomics by emails and Slack ensures timely feedback to be received by our team members. Despite the chaos caused by coronavirus pandemic, we are able to devote projected budget time or more to meet our milestones. Our sponsor is satisfied with our progress both verbally in team meetings and by writing in our communications.