ME 476C Bike Suspension

Team:

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Clients:

Dr. Trevas, Brandon Lurie

Proposed Problem Statement:

Mountain bike suspension lacks the capabilities to quickly and easily adjust for different terrain on the fly and needs to have a tuning option to allow for more comprehensive system. Mountain bike suspension also can be adjusted but can sometimes be difficult to understand the changes for the average consumer, so the team needs to create an easier way to help even beginner bikes be able to alter their suspension settings.

Extra Direction from Dr. Trevas:

Last Thursday, 9-3-20, the team met with Dr. Trevas to describe our ideal problem statement and gain approval. He was receptive of the idea and direction and provided the team with better project clarification/ goal setting. It was determined that the problem statement was sufficient and to align best with the class we will ensure that a large emphasis will be placed on engineering concepts and analysis, especially in the beginning stages of the project. Each team member has been assigned both a self-learning objective and a weekly action item, each of which pertains to the project development or an engineering concept we wish to better understand. We can outline these individual deliverable to you during our meeting this week.

Project Goals: (includes reaching out to sponsors here)

- Reach out to bike/suspension companies to gauge interest in sponsoring capstone. Most ideal case will be a sponsor providing a bike to run tests, analysis, and prototyping with. This proposal will be altered to an email or document to send out to a multitude of companies in order to increase chances of receiving a sponsor. This will allow for the team to gain experience working and communicating with industry professionals.
- Determine the best way to use mathematical modelling for suspension setup and optimization for specific bike platform the team is working with. This will allow the team to gain experience building a usable program that works alongside and bolsters the physical model.
- Work through all engineering design steps to create a physical prototype. Utilize skills learned in previous engineering design classes to arrive at a finalized, tested, and analyzed final product.

Hypothetical Deliverables:

- Utilize reverse engineering techniques to hypothesize ways that remote suspension adjustment can be attained.
- Full CAD package of mechanism for remote suspension adjustment.
- MATLAB program to perform initial shock setup based on rider classifications from physical attributes (height, weight) to ride feel preferences.