

K-12 Video Script

Purpose: To create a three-minute educational video based on the Rear Drive Capstone Project

Audience: For the intent of K-12 students to learn from, also for Judges of the 2020 Spring Engineering Expo to learn visually and directly from us about our project, and lastly for any community members of the school to watch and learn what Capstone projects were performed this year.

Outline:

Start/Introduction (15 Seconds)

Visual: *Personal video introduction clips*

Hello, my name is Thomas Entwit. I am here today as part of the Capstone Team “Skidaddle”, also representing the University of Idaho’s, Clean Snowmobile Challenge Team. We have designed a Rear Drive Snowmobile System for our project.

My name is Brannon Hudson.

And my name is Aref Hakami.

What does it mean to have a Rear Drive System? (20 Seconds)

Visual: *Two pictures side by side showing an industry standard front drive vs a rear drive snowmobile then a clip of the solidworks assembly video wrap around.*

A Rear-drive system is basically a different drive configuration than conventional snowmobile drive systems. The Rear Drive system pulls the track from the back, keeping the tensioned side of the track in contact with the snow. This is different than the industry standard of a front driven snowmobile, as shown in the pictures. What we hypothesized this would do for us is: improve fuel efficiency as well as the overall handling, in turn making the snow machine more eco-friendly and rider friendly. What a conventional front-drive system can result in is: fuel loss as well as other overall inefficiencies, in turn resulting in an overall decreased handling ability. To make a rear drive concept an actionable function of the snowmobile, we also had to clear a path within the tunnel of the machine, which is located under the seat of the rider, where the track resides, while adapting the current R-motion suspension system, so belts could power the newly designed and located rear drive axle.

Value of Rear Drive System? (15 Seconds)

Visual: *Value Proposition Power Point Slide*

So, we aimed to add value to the snowmobile industry by showing a correlation of data, supporting or disproving the validity of the rear drive system, compared to the industry standard forward drive system. While the value we sought for the U.I.C.S.C. team was giving an innovative new, ambitiously large project to the team to present in this year’s 2020 S.A.E. Clean Snowmobile Challenge.

Unluckily, due to the COVID-19 Pandemic we were not able to finish the final manufacturing of this system and when participating at this year’s Challenge Competition we were only able to show the progress that we had achieved in a static form.

About CSC Team and Competition (45 Seconds)

Visual: Photos/video from Competitions as well as a screen grab from the UICSC Webpage

The University of Idaho has had engineering teams participating in the SAE Clean Snowmobile Challenge since 2001, held in Houghton, Michigan. Our team has more than 50 awards to its name, including nine years of overall top three placements. We prepare all year long creating new ways to make snowmobiles cleaner, quieter, and more fuel efficient. With this year's competition already completed, we have already started work on next year's projects. When Fall Semester opens, the next generation of ambitious engineering students will be able to hit the ground running. As we recruit for the upcoming fall semester, everyone will know what we will be working on right away. Recruits can join any of the projects they want to work on, and immediately begin to participate with direction from their expert project leads. We are an interdisciplinary team that regularly meets twice each week to learn the basics of snowmobile design and create innovative solutions. We research, design, and test to reduce snowmobile engine emissions, reduce sound output, while still maintaining our Idaho heritage of handling and horsepower.

Anyone can join the Clean Snowmobile Challenge Team! Learn more about us on our website at "idahocsc.wixsite.com".

This year the UICSC Team was able to perform very well during most events at competition. We placed 4th overall in the spark-ignited category, while competing with 23 other teams from across the U.S. and Canada during the weeklong challenge. We also received awards for: "Best Endurance/Fuel Economy", "Best at In-Service Emissions", "Best Subjective Handling", The Continental sponsored "Best Value Award", and the Oshkosh sponsored "Best Design Award". We also received honorable mentions for getting the 2nd lowest J1161 sound results, 2nd Best Technical Presentation, and 3rd Best Written Design Paper.

Closing Remarks (10 Seconds)

Although, there were no specific awards for the Rear Drive System, it was well received at the competition, with many judges and other teams asking plenty of questions about the system. Creating such a buzz because of the uniqueness, being the only team to present such a system. Thank you for taking the time to learn about our project and our team, have a great rest of your day.