

# Minutes

CSC SNOWMOBILE TRACTION CONTROL

Minutes 9/22/15

Snowmobile team:

Main Goal: Improve on previous Design.

1. Electronic Throttle that works/feels like a mech. one.
2. Launch Control that limits slip for faster starts.
3. Traction control that limits slip while the sled is being ridden

Use ADC to control the throttle.

## Minutes 9/23/15

### Action Items

Dillon – Dropbox folder to be shared with everyone on the team and holds team documents.

\*In the project learning phase at this point\*

- Table of marketing / engineering specs done next week
- Budget is \$500
  - Using decision matrix, we will decide the items that are most important to us.
- Come up with 3 different designs to solve throttle problem:
  - Define problem statement
  - Get specs
  - Model the system
  - Pick the parts

### Individual Action Items:

- Chase – quantify the speed of throttle body
- Dillon – add people to the dropbox folder
  - Add team contract to folder
  - Have preliminary designs ready
- Scott – Look into Ti Microcontroller

## Minutes 9/30/15

### Client Interview:

- Define Launch
  - Industry standard/Race bike
- Can we use a button for launch?
  - Review CSC Rules
- Define Traction Control
  - Allows same distance as stock with less time
- What metrics for throttle, TC, and Launch
  - Faster than before, Control slip
- Cost of materials
  - R&D \$500, total cost of materials on sled \$200
- Preference of MCU
  - Does process correctly, less expensive is better
- Future systems using a different MCU?
  - Tiva has wide variety
- Traction Control throttle or ignition controlled?
  - Start with throttle bodies
- Sacrifice power for efficiency?
  - Only if it is justified
- How should throttle feel?
  - Close to stock as possible

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Chase- Time to start TC and switch gears from throttle

Scott- Found torque of throttle body approx. 3.2lb force

Hayes gets back about ABS next week

Scott- Pseudocode for algorithm for TC

Look into 9° of freedom sensor for TC

Chase- Throttle feel by keeping stock cable and springs but potentiometers at end of it.

Scott- Wants a single-dual potentiometer (1/4 shaft)

Dillon – Look at BYOB Booster pack for TI

Minutes 10/28/15

Servo Ordered, use O-ring to waterproof it

- Next week review contract
- Clean up client meeting
- Marketing spec vs engineering spec table

Scott- Characterize the servo

\*Smaller is better for power supply because of space constraints

- Switching supply 14.4 -> 6V and branch 6V into 3.3V with Liner
- Design Review Nov. 18
- Deliverables for wiki page Due 10/30/15

Minutes 11/4/15

Sparkfun for buck converter 5A , 6V for space constraint and BYOB

Booster Pack.

Action Items:

- Dillon- Do Pro/con of power supply designs
- Scott- Interface with 9<sup>0</sup> of freedom sensor
- Chase- Housing for servo/throttle
- Datasheet section in Portfolio

## Minutes 12/2/15

- ABS needs 40A, we have 25A
  - Huge Cap or battery to solve this
- I2C in progress, Tiva Compiler won't exit debug
  - Scott- unplug tiva from computer to keep running without exiting debug.
  - Dillon- PCB Design layout used for final product. Kicad software to design a PCB. Sunstone company to build it.
  - Chase- Solid Model of throttle housing
- For snapshot #2 we need:
  - Solid Model – Chase
  - PCB Layout – Dillon
  - Data Flow – Scott
  - Prototype of Throttle – Scott
  - Vision of Final Product