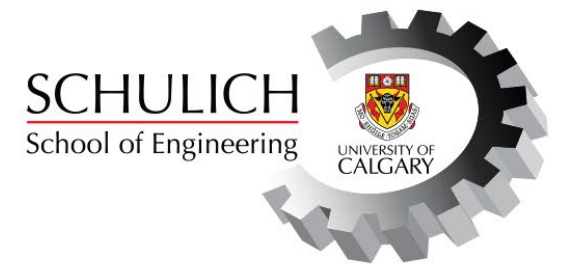


# Engineering Design Fair 2021

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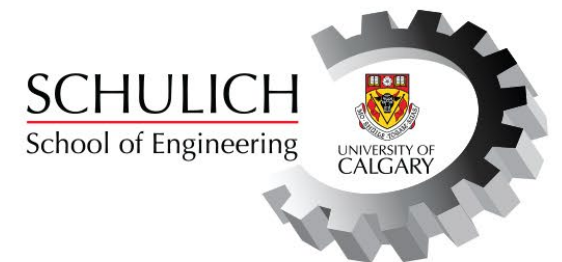
April 13  
9:30 a.m. to 2 p.m.



# Welcome to the Judge Orientation!

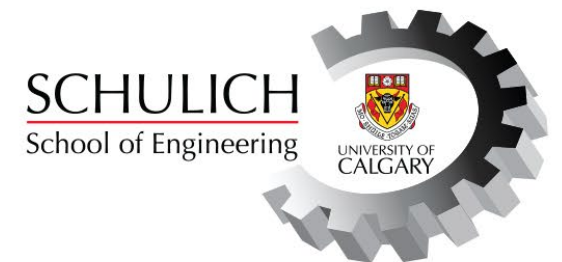
## Agenda for Today (12:00-12:30pm)

1. Brief Introduction to the 2021 Fair
2. How to Navigate the Website
3. Judging Process
4. Reminders & Helpful Hints
5. Questions?



# Brief Introduction to the 2021 Fair

- Virtual Fair this year, via website & Zoom
- <https://engineeringdesignfair.ucalgary.ca/>
- Student projects can be found under the “Projects” tab



# How to Navigate the Fair webpage

- Student projects can be found under the “Projects” tab



# Be sure to review your assigned Projects

- Once on the Project page, keep scrolling down to see all the content
- Don't forget to view the short video!

## About Our Project

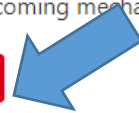
You pass through your garage, and everyday you see that one mechanical project you have not started on. It sits and there and rusts, and overtime the bolts holding the piece together will just never let go with the current tools you have. The space is tight, your bulky wrench is no help, you become *frustrated*.

We are the creators of the REVOLoosen, a compact and cost-effective manual ratchet with just the right amount of impact needed for frustrated handymen or mechanics to loosen tough bolts. Our tool multiplies the users' strength, which helps our users take on tougher jobs with ease. While our product works and feels like a normal ratchet, the impact action delivers *three* times more loosening power.

Well, you may say, why not use a powered version instead? Bulky powered impact wrenches require an *expensive* external air supply or electricity, but our ratchet with the extra impact can be used in tight spaces and in any environment, without relying on any power!

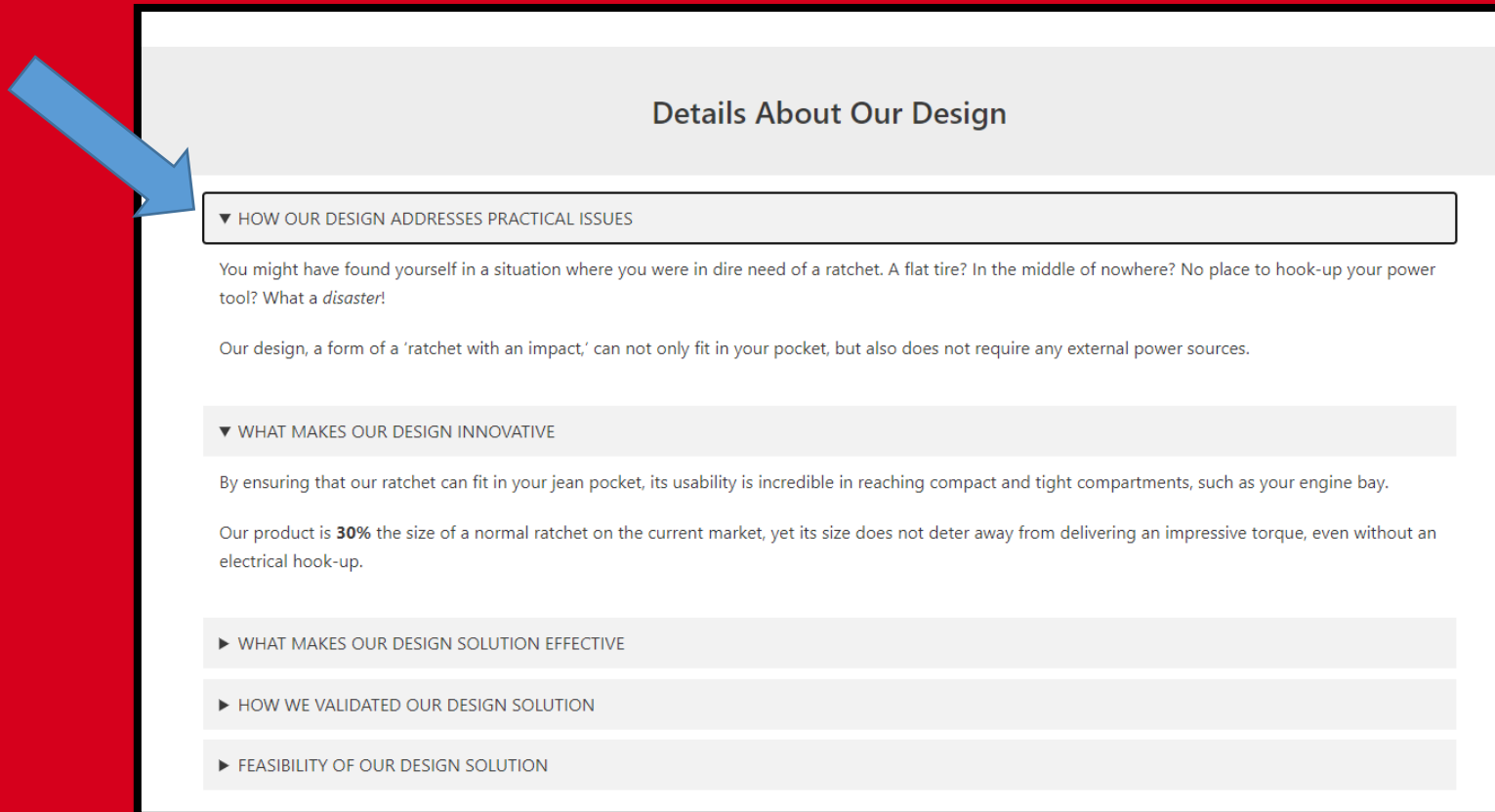
Safety and reliability are key to us, so come see what we are all about to assist in your upcoming mechanical projects, both *safely* and *effectively*.

[VIEW OUR VIDEO](#)



# Be sure to review your assigned Projects

- The “Details About Our Design” section will have the most detailed information



The screenshot shows a webpage with the title "Details About Our Design". A blue arrow points to the first section header, "HOW OUR DESIGN ADDRESSES PRACTICAL ISSUES". The content under this header describes a ratchet design that is compact and does not require external power. Below this are three more section headers: "WHAT MAKES OUR DESIGN INNOVATIVE", "WHAT MAKES OUR DESIGN SOLUTION EFFECTIVE", "HOW WE VALIDATED OUR DESIGN SOLUTION", and "FEASIBILITY OF OUR DESIGN SOLUTION".

## Details About Our Design

### ▼ HOW OUR DESIGN ADDRESSES PRACTICAL ISSUES

You might have found yourself in a situation where you were in dire need of a ratchet. A flat tire? In the middle of nowhere? No place to hook-up your power tool? What a *disaster!*

Our design, a form of a 'ratchet with an impact,' can not only fit in your pocket, but also does not require any external power sources.

### ▼ WHAT MAKES OUR DESIGN INNOVATIVE

By ensuring that our ratchet can fit in your jean pocket, its usability is incredible in reaching compact and tight compartments, such as your engine bay.

Our product is **30%** the size of a normal ratchet on the current market, yet its size does not deter away from delivering an impressive torque, even without an electrical hook-up.

### ▶ WHAT MAKES OUR DESIGN SOLUTION EFFECTIVE

### ▶ HOW WE VALIDATED OUR DESIGN SOLUTION

### ▶ FEASIBILITY OF OUR DESIGN SOLUTION

# How do you find the Team “booth”?

Engineering Design Fair 2021 Home ▾ Projects ▾ Judging Student Resources About Contacts

## Automatic Generation of Node-Breaker Models Using Python

**Project Category: Electrical**

Join our presentation

[ZOOM LINK](#)

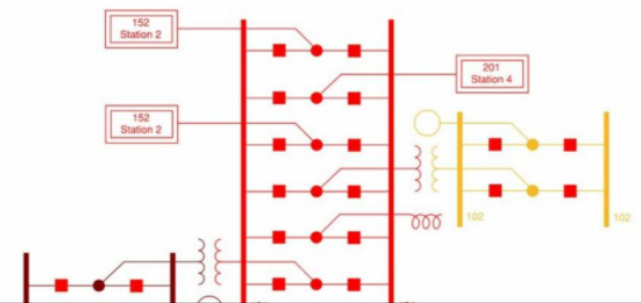
About our project

Our project involves Python programming and Power System Simulator for Engineering (PSSE) which is a high-performance transmission planning and analysis software.

PSSE is used to model complex power distribution systems. Older versions of PSSE only offered a “bus-branch” model, while newer versions have introduced a “node-breaker” model.

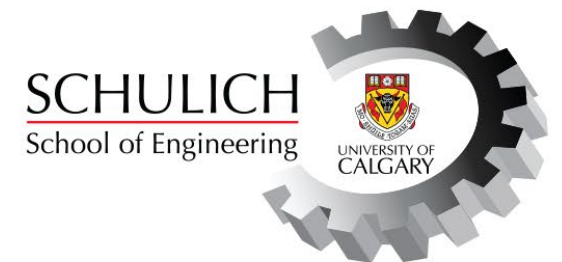
Node-breaker models include more details about the connections in the system at the substation level. This additional detail in PSSE allows for new ways to interact with the model. For example, with circuit breakers modeled, a system analyst can open or close breakers and test how the system will behave in that condition.

Our team has created a python program that takes a simple topographical input file about a substation and creates the corresponding model in PSSE.



# Judging Process

- Judging Materials:
  1. Your judging team info & teammates
  2. Rubric
  3. Judging Info Sheet
  4. Master Schedule
- You will receive these this week, via email
- Can't find the email? See the "Judging" tab on the website

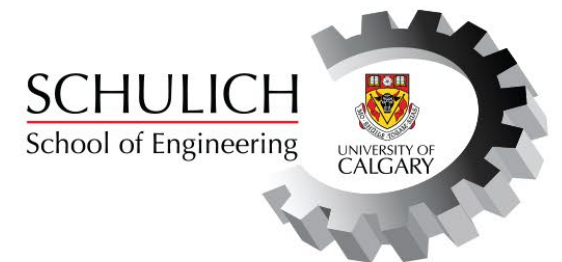




# Judging Process

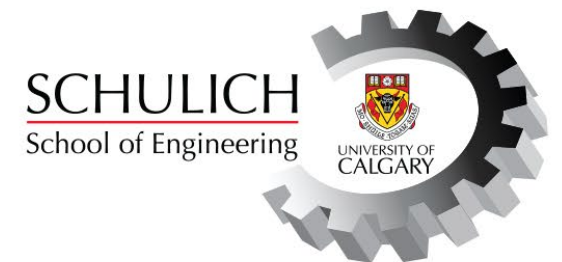
- Demo:

1. Your judging team info & teammates
2. Rubric
3. Judging Info Sheet
  - Remember to choose a Team Captain & a Time-Keeper!
4. Master Schedule



# Reminders & Helpful Hints

- Check your email for your Judge info this week
- Remember: Choose your Team Lead & Time-Keeper
- Review projects starting Monday, April 12<sup>th</sup> at 8:00am
- Questions or concerns? Email [capstone@ucalgary.ca](mailto:capstone@ucalgary.ca) or your Judge Coordinator directly



# Questions?

- [capstone@ucalgary.ca](mailto:capstone@ucalgary.ca)

