

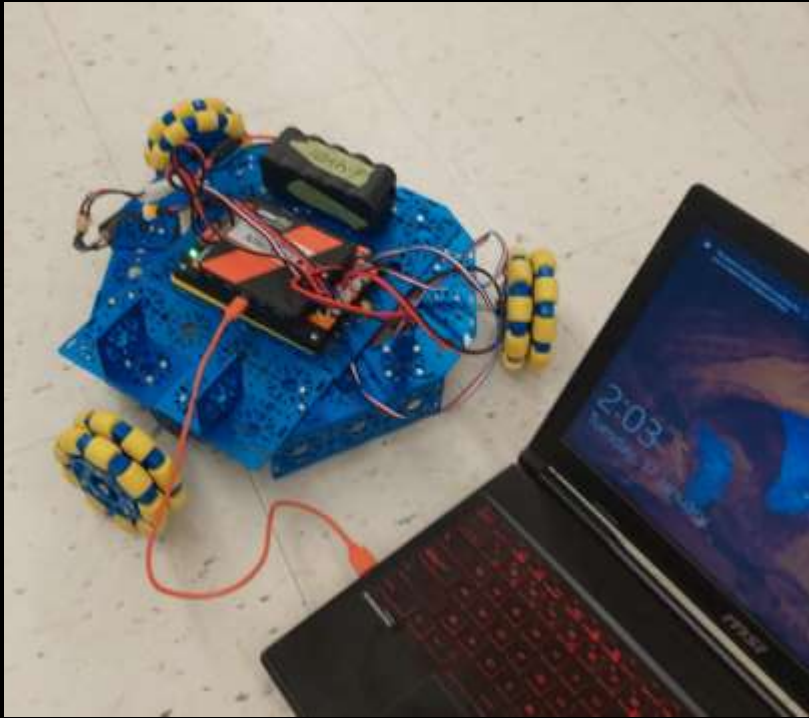
My Internship Experience at Komatsu

Camden Wilks



Introduction

About Me



- Lively District Secondary School
- Mechanical Engineering Student
- FTC Robotics
- 2024 Summer Intern at Komatsu
- Governor Generals Award

Laurentian University



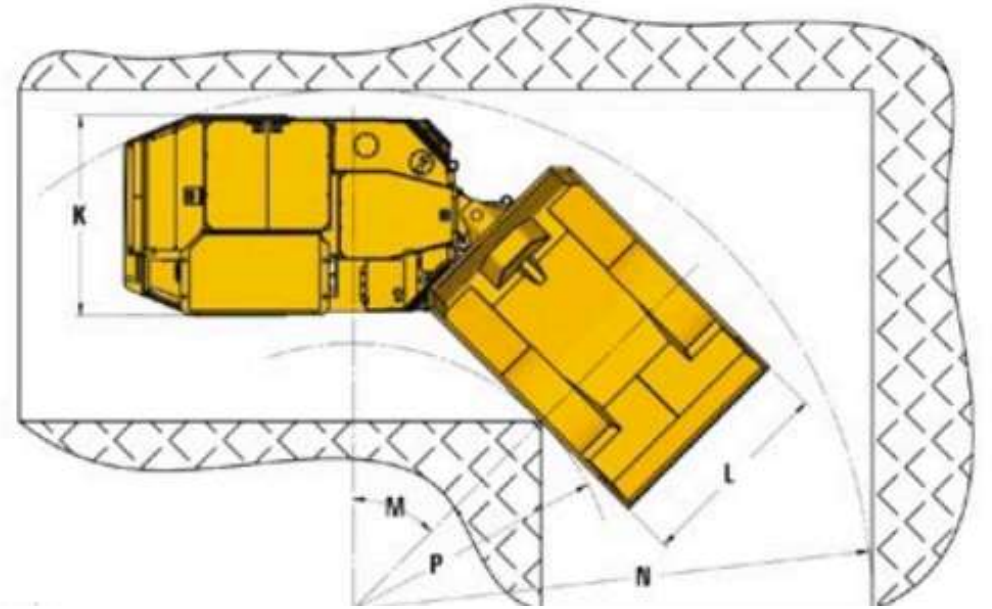
Laurentian University
Université **Laurentienne**

- Second year Mechanical Engineering
(Mechatronics Specialization)

The image features the word "KOMATSU" in a bold, blue, sans-serif font, centered horizontally. The background is a light gray gradient with a pattern of thin, light gray lines and small circles, resembling a circuit board or a network diagram. The lines are vertical and horizontal, with some circles at the ends, creating a sense of connectivity and technology. The overall design is clean and modern, with a dark blue border at the top and bottom.

KOMATSU

Machine Comparison



Task:

Compare SolidWorks models from Previous to present generation machines and compile a list of changes

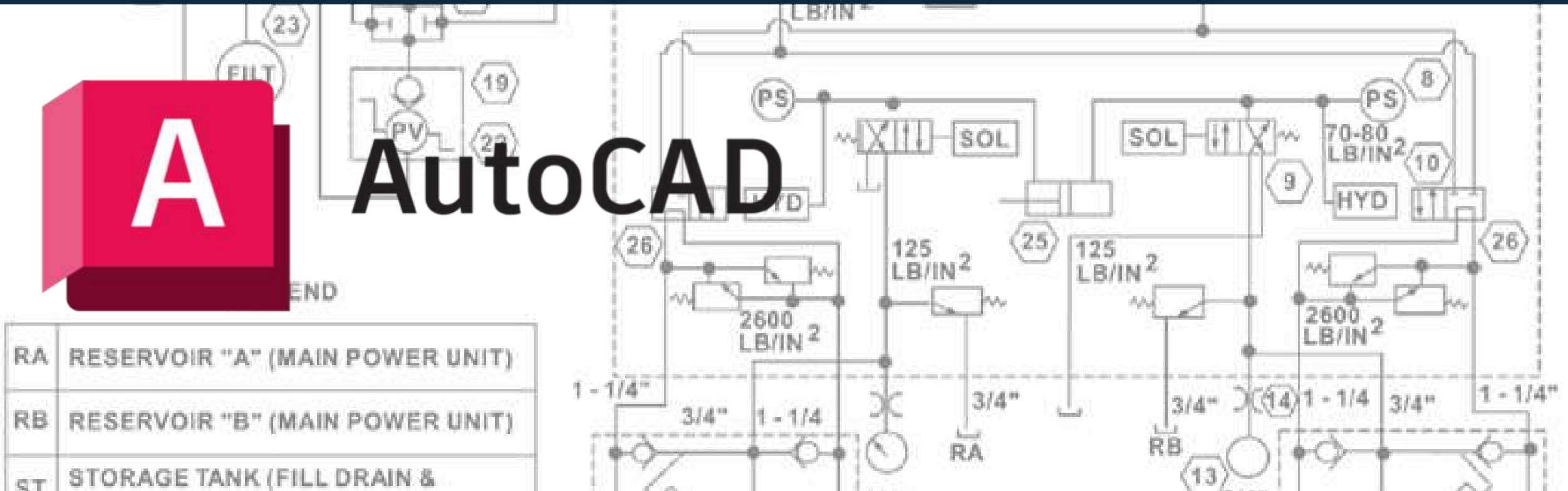
What I learned:

- Design constraints related to the underground work environment
- Manufacturing techniques
- Design Processes

Fluid Schematic



AutoCAD



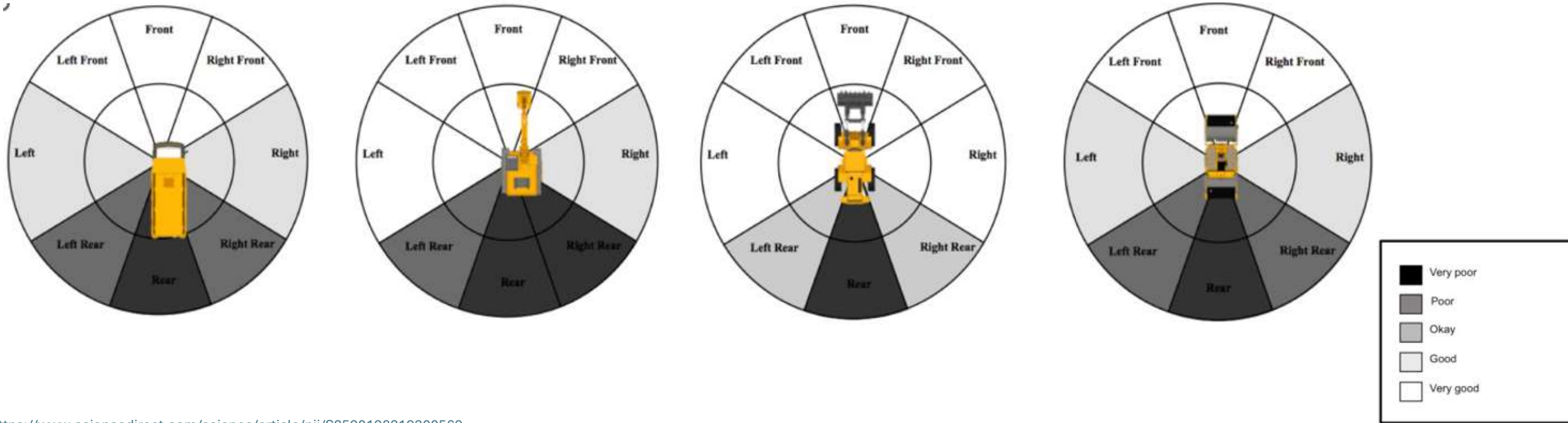
RA	RESERVOIR "A" (MAIN POWER UNIT)
RB	RESERVOIR "B" (MAIN POWER UNIT)
ST	STORAGE TANK (FILL DRAIN &

Task:
Create a schematic based on an existing fluid system

What I learned:

- AutoCAD
- Drawing structure
- Fluid System Design

Visibility Diagrams



<https://www.sciencedirect.com/science/article/pii/S2590198219300569>

Task:

Create visibility Diagrams for loaders using the Solidworks rendering feature

What I learned:

- Practical use of computer simulations in engineering applications
- Model optimisation
- Operator perspective

A look into the future...

WX04B



Safety



Reliability



Productivity



Battery swap motion times (+/-1 s)

Battery lift time	10 s
Battery lowering time	7 s
Battery lock/unlock time	3 s

Battery

Chemistry	Li-ion NMC
Nominal voltage	660V
Capacity	165 kW
Number of modules	6 per battery + 1 tramming
Cell monitoring	Onboard BMS
Cell cooling	Liquid
Thermal management	Integrated passive BTMS
Ambient operating temperature	-20°C to 46°C
Charging interface	CCS2
Charge source	External charger
Charge time	< 2 hours
Battery change	Ground level, self swap

Things I would like to pursue

- Research into improved control systems for mining machinery
- Development/Improvement to alternative power sources, such as battery-electric machinery

Thank you!



Questions?