



Company Information

Company Name	<i>Caterpillar, Inc</i>	Date Submitted	<i>11/02/2021</i>
Project Title	<i>Design and build a Portable Storage Unit for the Small Wheel Loader Cab (CAT_STORAGE)</i>	Planned Starting Semester	<i>Spring 2022</i>

Senior Design Project Description

Personnel

Typical teams will have 4-6 students, with engineering disciplines assigned based on the anticipated Scope of the Project.

Please provide your estimate of staffing in the below table. The Senior Design Committee will adjust as appropriate based on scope and discipline skills.

Discipline	Number	Discipline	Number
Mechanical	5	Electrical	
Computer		Systems	
Other ()			

Company and Project Overview:

Caterpillar is a Fortune 100 company with consolidated sales and revenues at \$41.7B in 2020. Customers turn to Caterpillar to help them develop infrastructure, energy and natural resource assets as the world's leading manufacturer of construction and mining equipment, diesel and natural gas engines, industrial gas turbines and diesel-electric locomotives. 161 global dealers sell our products to our customers in 192 countries. 97,000+ employees worldwide support our business by doing meaningful work every single day. We have 14 Employee Resource Groups to drive inclusion & innovation. Caterpillar named one of most admired companies in 2020. Caterpillar has appeared in the Top 50 All-Stars list for 19 consecutive years.

Project Requirements:

Design and build a portable storage unit that can be placed in the left side of the Small Wheel Loader cab. (Models 938M, 930M & 926M).



Expected Deliverables/Results:

- Design a portable storage device with multiple function capability, including:
 - L x W x H volume of storage space for placement of small hand tools, notebook, lunch box, etc... (Space TBD)
 - Item should incorporate handle(s) to allow for transport in and out of cab
 - Cannot exceed 15.5 kg total weight
 - System of attachment to existing cab components should be designed to accommodate normal loading during operation
 - Minimally invasive attachment to existing cab componentry
 - Cannot limit ingress/egress from operator station
 - Lid/Cover should be designed to prevent accidental opening during machine operation or during roll over event
 - Compartment should be sealed to prevent liquid egress in case of accidental spill
 - Design of cover/components should allow for detachable surface to be used as writing surface by operator
 - Optional: Incorporation of beverage holder in cover/components' design
 - USB connection for charging of portable electronic devices, using existing electrical connections in cab
 - Cost target: Production cost <\$50/unit

Disposition of Deliverables at the End of the Project:

Students are graded based on their display and presentation of their team's work product. It is mandatory that they exhibit at the Expo, so if the work product was tested at the supporter's location, it must be returned to campus for the Expo. After the expo, the team and supporter should arrange the handover of the work product to the industry supporter. This handover must be concluded within 7 days of the Expo.



List here any specific skills, requirements, specific courses, knowledge needed or suggested (if none please state none):

•