

Project Name	Year	Members	Equipment Used	Reason why Equipment used	Where equipment can be found	Issue Category	Description
Prosthetic Cat Leg	2017-2018	Taylor Gray,Megan Murphy	3D Printer	Print prosthetic leg	TIES Lab	Lack of Lab Access	Lab wasn't open when needed
Prosthetic Cat Leg	2017-2018		3D Printer	Print prosthetic leg	TIES Lab	Manufacturing- Lack of Proper Supplies	Wrong colors available for print
Beverage Can Ventilation Punch	2014-2015	Jason Lim, Christopher Loukopoulos	3D Printer	Print out handle for project	TIES Lab	Manufacturing-Lack of Proper Training	Unknown reason
Prosthetic Cat Leg	2017-2018		3D Printer	Print prosthetic leg	TIES Lab	Manufacturing-Lack of Proper Training	Printed Wrong sizes
Airplane Flaps Demo	2016-2017	Amanda Gee, Chris Kam	3D Printer	Print solid pieces of plastic(airfoil)	TIES Lab	Manufacturing-Lack of Proper Training	Thermal contraction causes distortion and cracks
Portable Hydropower Turbine	2016-2017	Courtney Lowe, Gerald Curell	3D Printer	Print prototyping for turbine	TIES Lab	Manufacturing-Lack of Proper Training	Constraints to sizing of pieces printed
Prosthetic Dog Leg	2016-2017		3D Printer	Print PET plastic leg attachment, paw structure, and paw pad	TIES Lab	Manufacturing-Lack of Proper Training	3D Printed parts do no print to scale because of quick cooling after being molded from hot plastic
Shoulder Strengthening Device	2016-2017	Ben Hicks, Beau Powell	3D Printer	Print parts	TIES Lab	Manufacturing-Lack of Proper Training	3D Printer cannot print semi spherical/spherical solids in a practical amount of time
Hydrogen Fuel Generator	2016-2017		3D Printer	Print a spacer for project	TIES Lab		
Removable Electric Wheelchair Drive System	2016-2017		3D Printer	Print highly precise shape for the wheel that makes direct contact with wheelchair	TIES Lab		
Coupled Jet Engine Proof of Concept	2015-2016	Andrew Bose, Kevin Leong	3D Printer	Print a mold for project	TIES Lab		
Miniature Wind Turbine	2015-2016	James Benefield, Joshua Dorris	3D Printer	Print wind turbine blades	TIES Lab		SLA 3-D printer provides much cleaner contours than FDM printer
Miniature Wind Turbine	2015-2016		3D Printer	Print wind turbine hub where blades meet	TIES Lab		SLA printer not used for wings because blades would of been too flexible
Rotary 3D Printer	2015-2016	Jordan Briggs, Austin Jarvis	3D Printer	Print parts for the 3d printer, even sidestepping aluminum which design calls for initially	TIES Lab		
Automated Book Sorter and Shelver	2014-2015		3D Printer	Print out scooper plate (odd shape part)	TIES Lab		
SWALLOW	2014-2015		3D Printer	Print out unique shape of their UAV	TIES Lab		
Prosthetic Dog Leg	2016-2017		3D Scanner	Scan dogs leg	TIES Lab		
Hybrid Tricycle Project	2015-2016	Trevor Doom, Daniel Lee	Arbor Press, broaching tools	Create keyway slot for gear in bike	Off-Campus	Manufacturing- Lack of Proper Equipment	Proper Broach not available
Underwater Camera Swim Training Aid	2016-2017	Ashwin Sharma, Colton Douda	Band saw	Cut sheet metal along predetermined lines	CS 126	Manufacturing- Lack of Proper Equipment	Did not have the proper tool for the job so they had to improvise and use a band saw instead of the proper tool.
Tire Lift Assist System	2015-2016		Band saw	Rough cut hollow steel beams	CS 126		
Solar Power Sunshade System	2014-2015	Sam Costigan, Selena Kaffer	Band saw	Cut out aluminum fabric support rods	CS 126		

Three Degree of Freedom	2014-2015		Band saw	Cut copper rod into shorter pieces	CS 126		
Self Supporting Bench Press	2015-2016		Belt Sander	Deburr edges for flat or smooth sides	CS 126		
Tire Lift Assist System	2015-2016		Belt Sander	Soften sharp edges and burrs	CS 126		
Removable Electric Wheelchair Drive System	2016-2017		Bridgeport Milling Machine	Drill Holes	CS 126		
Automated Camera Track	2015-2016		Bridgeport Milling Machine		CS 126		
Miniature Wind Turbine	2015-2016		Bridgeport Milling Machine	Face and drill operations and cutting things down to size	CS 126		
Pneumatically Assisted Arm	2015-2016		Bridgeport Milling Machine	Make angular pieces of the shoulder and forearm	CS 126		
Rotary 3D Printer	2015-2016		Bridgeport Milling Machine	To cut piece within 1/1000 tolerance	CS 126		
Self Supporting Bench Press	2015-2016		Bridgeport Milling Machine	File down edges and drill holes/thread	CS 126		
Tire Lift Assist System	2015-2016		Bridgeport Milling Machine	To drill holes in the base of their project	CS 126		
Beverage Can Ventilation Punch	2014-2015		Bridgeport Milling Machine	Used for reaming existing holes created by water jet	CS 126		
Diamond Foods Inc. Pre-Heating Chamber Remodel	2014-2015		Bridgeport Milling Machine	To drill hole into rectangular geometry figure	CS 126		
Human Powered Ground Drill	2014-2015	Jesse Chen, Eric Martinez	Bridgeport Milling Machine	Cut out metal and wood	CS 126		
Solar Power Sunshade System	2014-2015		Bridgeport Milling Machine	Drill and tap holes into project	CS 126		
Three Degree of Freedom	2014-2015		Bridgeport Milling Machine	Create hole at center of aluminum shaft	CS 126		
Hybrid Tricycle Project	2015-2016		CNC Router	Fabricate Drive Gear	TIES Lab	Unaware of Equipment	Did not know about equipment on campus
Miniature Wind Turbine	2015-2016		CNC Router	Used for cut outs in project	TIES Lab		
Prosthetic Cat Leg	2017-2018		Fasteners	Screw printed parts together on Prosthetic Leg	TIES Lab	Manufacturing- Lack of Proper Supplies	Didn't have proper screw sizes
Portable Hydropower Turbine	2016-2017		Fiberglass Fabrication	Coat over 3-D printed model for additional structure	Off-Campus	Lack of Work Space	No location to lay out materials and do proper fiberglass fabrication
Prosthetic Dog Leg	2016-2017		HAAS VF-1		CTC 112	Manufacturing- Lack of Proper Supplies	Did not have the proper drill bit size, needed to modify the drawing to match tooling in machine
Prosthetic Dog Leg	2016-2017	Ben Jamison, Carter Crowell, more..	HAAS VF-1	Cut out piece of aluminum	CTC 112		
RC Car Optimized	2015-2016		HAAS VF-1	Cut out for chassis of car	CTC 112		
Tire Lift Assist System	2015-2016		HAAS VF-1	Fabricate beams for scissor lift by cutting out pieces in bigger beam then facing and filleted the beams	CTC 112		

Beverage Can Ventilation Punch	2014-2015		HAAS VF-1	Pocket aluminum stock provided	CTC 112		
Diamond Foods Inc. Pre-Heating Chamber Remodel	2014-2015	Colby Anama, Diego Munoz	HAAS VF-1	To create bin-spacing allocations for project	CTC 112		
SWALLOW	2014-2015	Owen Lincoln, Dylan Saracco	HAAS VF-1	Cut out aluminum and steel plates as well as cut out landing gears	CTC 112		
Hydrogen Fuel Generator	2016-2017		Hand tools	Cut nylon threaded rod for project	CS 126		
Prosthetic Cat Leg	2017-2018		Hand Tools	Carving and Engraving on Prosthetic Leg	TIES Lab	Lack of Work Space	No space to work or store project
Prosthetic Cat Leg	2017-2018		Hand Tools	Screw printed parts together on Prosthetic Leg	CS 126	Manufacturing- Lack of Proper Supplies	Didn't have proper screw sizes
Prosthetic Cat Leg	2017-2018		Hand Tools	Carving and Engraving on Prosthetic Leg	TIES Lab	Unaware of Equipment	Unaware of equipment on campus
Automated Camera Track	2015-2016	Emanuel Abarca	Hand Tools	Manufacture camera track	CS 126		
Tire Lift Assist System	2015-2016	Ranjot Dhaliwal, Kristena Moules	Hand Tools	Measuring of parts used in project	CS 126		
Underwater Camera Swim Training Aid	2016-2017		Hand Tools	Machine fixture at a precise angle in mill	CS 126		
Pneumatically Assisted Arm	2015-2016		Hand Tools	To create threaded holes for project	CS 126		
Rotary 3D Printer	2015-2016		Horizontal Band saw	Cut linear guide rods and T-slot to length	CS 126		
SWALLOW	2014-2015		Horizontal Band saw	Cut copper rods into smaller pieces	CS 126		
Self Supporting Bench Press	2015-2016		Band saw	Cut steel tubing	CS 126		
Hydrogen Fuel Generator	2016-2017	Andrew Magnasco, Mitchell Shelton	Laser Cutter	To cut out metal plates	Off-Campus	Manufacturing- Lack of Proper Equipment	UOP Laser Cutter does not cut metal parts
Adjustable Load-Bearing Leg Brace	2015-2016	Jeremy Wood, Hannah Bettencourt	Laser Cutter	Highly accurate angular cuts to footplate and ankle flexion system	Off-Campus	Manufacturing- Lack of Proper Equipment	UOP Laser Cutter does not cut metal parts
RC Car Optimized	2015-2016	Sean Ferguson, Garret Close	Laser Cutter	Create custom aluminum parts	Off-Campus	Manufacturing- Lack of Proper Equipment	UOP Laser Cutter does not cut metal parts
Airplane Flaps Demo	2016-2017		Laser Cutter	Cut acrylic for mounting bracket	TIES Lab		
Shoulder Strengthening Device	2016-2017		Laser Cutter	To cut out a part to understand kinetics of rotating unbalance	TIES Lab		
Human Powered Ground Drill	2014-2015		Lathe	Tap and turn down spline shaft	CS 126	Unaware of Equipment	Unaware of equipment on campus

Removable Electric Wheelchair Drive System	2016-2017	Daniel Doan, Kevin Johnson	Lathe	Cut or alter steel pieces	CS 126		
Underwater Camera Swim Training Aid	2016-2017		Lathe	Cut out wheels of cart using nylon	CS 126		
Automated Camera Track	2015-2016		Lathe		CS 126		
Miniature Wind Turbine	2015-2016		Lathe	To manufacture a tube for their project	CS 126		
Pneumatically Assisted Arm	2015-2016		Lathe	Cut steel shaft	CS 126		
Rotary 3D Printer	2015-2016		Lathe	Turned and bored Delrin cylinder on Lathe	CS 126		
Human Powered Ground Drill	2014-2015		Lathe	Cut out metal and wood	CS 126		
Solar Power Sunshade System	2014-2015		Lathe	Reduce diameter of spring spools	CS 126		
SWALLOW	2014-2015		Lathe	Cut out smaller pieces of copper rods which could then be soldered onto other components	CS 126		
Three Degree of Freedom	2014-2015	Aziz Alnajdi, Julio Hernandez	Lathe	Turn a piece of aluminum	CS 126		
Shoulder Strengthening Device	2016-2017		Metal Lathe	Create drive shaft and mass and rotating shaft	TIES Lab		
Self Supporting Bench Press	2015-2016		MIG Welder	Steel Welding	CS126	Manufacturing- Lack of Proper Equipment	"All welding done off-campus due to limited types of welding offered."
Three Degree of Freedom	2014-2015		MIG Welder	Weld up a landing pad for testing purposes	CS 126	Unaware of Equipment	Not on campus
Low Profile Self-Transforming Creeper/Stool	2016-2017		MIG Welder	Weld brackets onto base and pins to secure linkages of stool	CS 126		
Removable Electric Wheelchair Drive System	2016-2017		MIG Welder	Weld joints	CS 126		
Underwater Camera Swim Training Aid	2016-2017		MIG Welder	Create steel fins for project	CS 126		
Automated Book Sorter and Shelver	2014-2015		MIG Welder	Weld helix to center of the rod	CS 126		
Adjustable Load-Bearing Leg Brace	2015-2016		MIG Welder	Weld foot plate together from sheet metal cutouts	CS 126		
Prosthetic Dog Leg	2016-2017		Molding Materials	Mold the dogs leg	TIES Lab		
SWALLOW	2014-2015		Panel Saw	Cut plywood boards into approximate size	Off-Campus	Manufacturing- Lack of Proper Equipment	Not available on Campus
Adjustable Load-Bearing Leg Brace	2015-2016		Plasma Cutter		CS 126	Manufacturing-Lack of Proper Training	Was not able to manufacture the device out of aluminum
Low Profile Self-Transforming Creeper/Stool	2016-2017	Brandon Clore, Craig Pham	Plasma Cutter	Cut mild steel panels to make base, supports, panels, and brackets	CS 126		

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