BME Design: 200, 300, 301, 400 and 402

Medication Delivery and Use in Home-Based Hospital Care

(Medication Delivery)

Date: 11/06/2026 - 11/12/2026

Client: Jennifer Woodard
Advisor: Randy Bartels
Team:

Aariel Moore - Team Leader, ajmoore4@wisc.edu
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Problem statement

Older adults and others with reduced grip strength, dexterity, or vision frequently cannot open blister-packaged medication, particularly peel-back foils. Existing aids either require substantial force, fail on peel-away packaging, or are too large, costly, or hazardous for personal use. As a result, patients drop pills, use sharp tools, or miss doses. A portable, low-force, low-cost tool is needed that safely opens both peel-back and push-through blister packaging without modifying the package or exposing sharp edges.

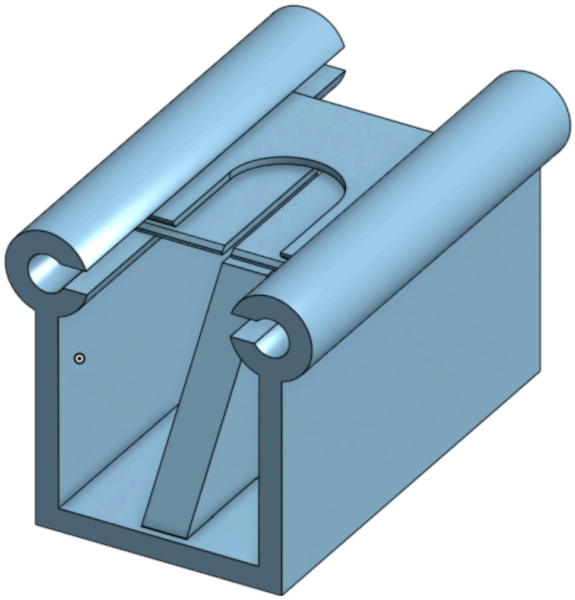
Brief status update

The team has met outside of class to 3D print a prototype. We ended up choosing an alternative design to print as our original design did not fit our problem statement. Future client meetings to discuss progress have been scheduled to discuss this design. Future testing of this new prototype has been planned. The current prototype is working, but has dimension and stability issues. We will attempt to fix these issues next week before the advisor meeting and have a complete design before the next client meeting.

Difficulties / advice requests

We are having difficulty with finding a way to successfully push the pills through the plastic out the other end. Through some testing we realized that the last part of prescribed pills is a little more difficult to work with than over the counter medicine. The goal now is to make a clean slice through the backing. We will attempt to take the pill out of the package using a secondary tool. Making this a two step process instead of one.

Current design



Materials and expenses

Item	Description	Manufac-turer	Mft Pt#	Vendor	Vendor Cat#	Date	#	Cost Each	Total	Link
Category 1: Lever Design										
PLA	Lever Design							$0.02	$1.94	
PLA	Rods and Hex Nuts								$0.19	
Category 2: Push Cut Pop										
PLA	Top Part								$2.74	
PLA	Bottom Part								$2.01	
PLA	Push, Cut, Pop Design							$0.02	$4.14	
Category 3: Slider and Blade Support Design										
PLA	Prototype Assembly								$1.80	
PLA	Slider and Stand								$0.39	
								TOTAL:	$13.21	

Goals

Major team goals for the next week

1. Further Testing and write testing protocols

2. Do blade research
3. Continue advancing design

Next week's individual goals

- Aariel Moore
  - Work on safety mechanism for current design
  - Solidworks potential handle
  - Continue blade research
- Alayna Allsop
  - Complete design of handle and blade guard
  - Complete testing with client supplies
  - Finalize prototype for printing
- Caiden Krzmarzick
  - Continue testing and iteration on final design
  - Continued communication with client to schedule in-person testing
  - Design blade safety and handle mechanisms
- Sascha Jameson
  - Research handle
  - Continue blade research
  - Continue testing
- Sila Olcay
  - Continue testing
  - Work on blade research
  - Complete in person testing with client and her team
- Sarvesh Anandhaganesen
  - Continue testing with group
  - Identify if current blades are ideal
  - Test with client and iterate final design

Timeline

Task	Sept				Oct					Nov				Dec	
	4	10	17	24	1	8	15	22	29	5	12	19	26	3	10
Project R&D															
Empathize	X	X	X	X	X	X	X	X	X	X	X				
Background…		X	X				X		X	X	X				
Prototyping						X	X	X	X	X	X				
Testings								X		X	X				
Deliverables															
Progress Reports	X	X	X	X	X	X	X	X	X	X	X				
Prelim presentation					X										
Final Poster															
Meetings															

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Client				X	X			X							
Advisor			X	X	X	X	X				X				
Website															
Update	X	X	X	X	X	X	X	X	X	X	X				

Filled boxes = projected timeline
X = task was worked on or completed

Detailed accomplishment

Previous week's goals and accomplishments

- Aariel Moore
  - Tested revised prototype
  - Updated lab archives
  - Met team outside of class
- Alayna Allsop
  - Printed design with updated dimensions
  - Met with Jesse Darley for advice on mechanistic components of design
  - Started designing handle in CAD
- Caiden Krzmarzick
  - Printed new version of prototype
  - Attended in-person meeting
  - Worked on design iteration
- Sascha Jameson
  - Blade research
  - Handle research
  - Updated lab archives
- Sila Olcay
  - Purchased blades for testing
  - Continued research
  - Met with team to continue testing
- Sarvesh Anandhaganesen
  - Purchased blades
  - Met with team to continue testing

Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Aariel Moore	11/12/2026	Research, Testing, Outside Meeting	2	2	34
Alayna Allsop	11/11/2026	Meetings, Testing, Design	4	4	36
Caiden Krzmarzick	11/12/2026	Printing, Testing, Research	2	2	32
Sarvesh Anandhagansen	11/12/2026	Team Meeting, Blades	2	2	31

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Sila Olcay	11/12/2026	Research	1	1	32
Sascha Jameson	11/12/2026	Research	2	2	30