

Lab 1: “ Needs Identification”

- Introduce the **Fundability Worksheet** from Medicoventures.
- **Identify** an existing **health care issue**.
- Report on the **impact** of the issue on society (why it’s important)
- Identify your customers for **validation**.
 - Review **current solutions** to the chosen health care issue.
 - Available resources: Google Scholar, Patent Searches, News Searches (Lexis Nexis), Journal Searches
 - Describe **advantages/disadvantages** to each current solution.
 - Identify the unmet needs (financial, technological, etc.)
 - Score relevant portions of the **fundability worksheet**
 - **Customer validation**.
 - **Competitors**
 - **Intellectual Property (IP)**

Color Coding

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Assignment

Cite appropriately all resources used in completing this analysis.

1. Describe the **health care issue** you will develop a solution for. **Include a description of the pathology your device or technology that will treat/prevent/diagnose.**
 - **Pill Box Phone Case**
 - **Issues solved:**
 - Medication security/Prevent medication abuse
 - Thumbprint to open case
 - Forgetting to take medication
 - Reminder
 - Leaving medication at home when on the go
 - Refilling before running out
 - Reminder to refill
 - Location to local pharmacist
 - **Medication usage**

- This product will be able to hold (a week's worth of pills). The case itself is connected to an app that will:
 - Remind the user when to take their medication
 - Open the pill box with phone touch ID
 - Keep track of how many pills are left in the case
 - Keep track of how many pills are left in total
 - Remind the user when to refill their prescription
 - Send a notification to a local pharmacist to prepare a refill
- In addition to the simple task of taking medication on time, this product also prevents others stealing medication with the touch ID box protection.
- The health issue being addressed is medication usage. Currently, thirty two million Americans use three or more medications daily (PhRMA 2011) [1]. However, the modern person is always on the go, throwing themselves into their work, and losing track of time. According to a review in Annals of Internal Medicine, about fifty percent of medication for chronic diseases are not taken as prescribed [2]. Despite forgetting to take important medication, no one ever leaves for the day without a cell phone. People check their phones 150 times a day, checking their phones every six minutes [3]. The product developed to solve this issue is a pill box phone case. This will be able to hold at least a week's worth of medication on the back of a smartphone. The case will also be connected to an app that can be downloaded, performing several tasks including a reminder of when to take the medication, track how many pills are left in the case and in total, send reminders to the user when a refill is needed, and contact the user's pharmacist when a refill is needed. In addition, there will be a touch ID to open the case to prevent medication from being lost or stolen.
- Works Cited
 - <https://www.epill.com/statistics.html>
 - <https://www.nytimes.com/2017/04/17/well/the-cost-of-not-taking-your-medicine.html>
 - <https://www.nytimes.com/2017/01/09/well/live/hooked-on-our-smartphones.html>

2. **Customer Validation:** Create a list of 20 **specific customers** that you would contact to validate your device/technology (physicians, individuals, organizations etc).

1	Patient (Moath)	
2	patient (Meshal)	
3	patient (Omar)	
4	CVS	pharmacy
5	ASU Clinics	Hospital
6	patient (Aisha)	
7	Patient (Bill)	
8	Doctor	
9	Doctor	
10	patient (David)	
11	Althor Products (1)	Company provides pill box
12	Creative Findings, LLC (2)	Company provides pill box
13	Walgreens	Pharmacy
14	MedFolio (3)	Medication management
15	Elligrid	Sell pill box
16	Pioneer Plastics (4)	Custom Manufacturer (pill box)
17		
18		
19		
20		

- 1.) <http://www.althor.com/>
- 2.) http://creativefindings.rtrk.com/?scid=2178056&rl_alt=http%253a%252f%252fwww.creativefindings.com
- 3.) <https://www.medfoliopillbox.com/>
- 4.) <https://www.pioneerplastics.com/>

3. **Competitors:** List current solutions for this health care issue. Create a column for each of the following:

- a. Advantages (with reference to other solutions)
- b. Disadvantages (with reference to other solutions and the ideal solution)
 - i. Include unmet needs and categorize them (financial, technological, etc.).
- c. Given the above (a and b) describe why your device/technology is more marketable.

A and B:

Device	Advantages	Disadvantages
1.) Livi Automatic Pill Dispenser ⁽¹⁾	Electronic, fancy, app reminders, email, text, multiple medications, 90 days	Expensive, not portable as compared to the phone case - Financial and practical disadvantages

2.) Oversized Easy Open Weekly Pill Organizer ⁽⁴⁾	Cheap (\$15),	Refills needed every week, large and bulky -practical disadvantages
3.) Automatic Pill Dispenser, Electronic Medication Reminder with new Lock, Louder Alarm and Flashing Light - Solid Top ⁽³⁾	Electronic, as compared to a box, has an alarm to remind patients to take pills, 28 (2-week dispense)	Expensive (\$80), large and bulky, looks (and probably sounds like a fire alarm) Financial, and convenience disadvantages
4.) Maya Pill Dispenser ⁽²⁾	Electronic reminders and 1-week refillable container, phone calls, text messages, has specific time frame, if pills have not been taken it sounds the, entire lid opens for easy refill as opposed to refilling each days compartments individually (each day opens too)	\$\$\$, monthly fee of \$40, not portable, large. Our solution is smaller and is almost always on hand these days. Financial and practical disadvantages
5.) 7 Day Pill Case ⁽⁶⁾	Cheap \$.01=10.01, easy to use, small	Low quality material, no reminders, hard to carry around Technological disadvantages
6.) Sagely Pill Organizer ⁽⁷⁾	Magnetized base so individual days can be removed, easy refill by pushing through the top	Seems less sanitary, allowing contact with open environment, \$35.50 mid-range price, easy to lose Hygiene and technological disadvantages
7.) EYN Protective Smart phone case with storage ⁽⁵⁾	Connected to phone, portable	No security or dispense system, not meant for pills Technological and practical disadvantages

C.) Our Pill Box Phone Case combines the best features of each of these current solutions and eliminates many of the disadvantages. Our solution will be small and affordable, able to electronically communicate and work with the smartphone in order to remind people to take medicine. It would be secure preventing others from abusing drugs. Also helps prevent missing medications or overdosing. There would be a PIN or fingerprint required through an app on the patients phone to dispense medication. Some further advantages of the phone pill case is that it removes any worry of forgetting to take your pills as phones are common to be on hand at all times.

4.IP Position: Perform a **patent search** and describe existing patents related to your device/technology.

- a. US20150048102 A1: Electronic pill box and medication reminder and compliance system incorporating same [9]
 - i. Inventors: Robert G. Dickie, Walter Prokopchuk; assignee: Next Paradigm Inc.; Filing date: August 13, 2013; no images available.
 - ii. This is a pill box that lights up the pill compartments to remind patients to take their pills on time; if the light is on they still haven't taken the pills.
 - iii. This would be fundamentally different than a phone case, as it is a traditional pill box style. It is similar to the design in that it aims to remind the patient of their prescription.
- b. US20160081882: Phone case pill dispenser [8]
 - i. Inventors: James Joyce, David Shanahan; assignee: HealthBeacon, Limited; Filing date: August 6, 2015; no images available.
 - ii. This patent describes a phone case that contains pills and connects to the smartphone to know if the door to any given compartment has been opened or closed. It describes a phone case that specifically aims to dispense, not store medications.
 - iii. This phone case does not exist and although there exists a patent, it is easy to improve upon the idea with an accompanying application that allows the patient to connect with their pharmacy and or know if they still need to take medication.

5. Using the information you have compiled, score the portions of the *fundability worksheet* listed below.

- a. Customer Validation (use a value of 1).
- b. Competitors.
 - 2 - There are existing products that serve the function of holding pills in a phone. However, they are not for the exact use of pill holding in a phone case. There is still room to improve what is out there.
- c. IP Position.
 - 2 - Although there are phone cases that contain or dispense medication, there are not any that have as many elements as this product. In addition to medication storage, the phone case will also work with software that can communicate with pharmacies and alert the patient to take medication or refill their pill case.

Resources:

Works Cited

- 1.) https://liviathome.com/landing-page?gclid=Cj0KCQIA-qDTBRD-ARIsAJ_10yK-MNY4kCjy_13YsrLLaxHrXSPbPizGYKLUUW0wsi2FTj02rI-X7kaAnuOEALw_wcB
- 2.) <https://www.medminder.com/pill-dispensers-2/maya-pill-dispenser/>
- 3.) <https://www.walmart.com/ip/Automatic-Pill-Dispenser-Electronic-Medication-Reminder-with-new-Lock-Louder-Alarm-and-Flashing-Light-Solid-Top/48554615?wmlspartner=wlp&selectedSellerId=566&adid=22222222227035974669&wl0=&wl1=g&wl2=c&wl3=76844364874&wl4=pla-178150909234&wl5=9030087&wl6=&wl7=&wl8=&wl9=pla&wl10=111840067&wl11=online&wl12=48554615&wl13=&vch=sem>

4.)<https://www.walmart.com/ip/Oversized-Easy-Open-Weekly-Pill-Organizer/865412683?wmlspartner=wlp&selectedSellerId=1656&adid=222222227134015746&wl0=&wl1=g&wl2=c&wl3=242036171961&wl4=pla-397797921033&wl5=9030087&wl6=&wl7=&wl8=&wl9=pla&wl10=112550034&wl11=online&wl12=865412683&wl13=&veh=sem>

5.)https://www.groupon.com/deals/gg-smartphone-case-with-hidden-storage-for-iphone-and-samsung-s4?deal_option=da16004c-8424-11e6-9733-00259069d868&utm_source=Google&utm_medium=cpc&utm_campaign=US_DT_SEA_GGL_TIM_TTT_PADS_CBP_CHP_NBR_g*gg-smartphone-case-with-hidden-storage-for-iphone-and-samsung-s4_productpartitionid*51320962143_campaignid*228801421_adgroupid*42520270953_prodtarget*51320962143_productid*51884403_target*pla-51320962143_d*Goods-Product-Ads_keyword*_adtype*pla_merchantid*10018412_c*187095837281_k*_m*_adposition*1o1&mr:referralID=2ac30685-0121-11e8-be36-005056947d48&gclid=Cj0KCOiA-qDTBRD-ARIsAJ_10yJPIhHz3ZxRPS1OehVtFdQOcD2FsrrlPI78Wc5N-PfsrKGo1fyO644aArHrEALw_wcB

6.)https://www.qualitylogoproducts.com/tradeshaw-promotions/7-day-pillcase.htm?variant=BLANK&imageID=279203&feed=google&gclid=Cj0KCOiA-qDTBRD-ARIsAJ_10yJPIhHz3ZxRPS1OehVtFdQOcD2FsrrlPI78Wc5N-PfsrKGo1fyO644aArHrEALw_wcB

7.)https://www.amazon.com/Sagely-Smart-Weekly-Pill-Organizer/dp/B01CPOHARW/ref=pd_bxgy_121_img_2?encoding=UTF8&pd_rd_i=B01CPOHARW&pd_rd_r=GQQ1X8PM6PXJY86NMAXT&pd_rd_w=rvter&pd_rd_wg=GrVfB&pssc=1&refRID=GQQ1X8PM6PXJY86NMAXT

8.)<https://www.google.com/patents/US20160081882?cl=en>

9.)<https://www.google.com/patents/US20150048102>

- **“How-to” Videos:**

- How to cite different resources
- How to use Boolean Operators to improve searches on Google and Google Scholar
- How to search for News Articles on Lexis Nexis
- Understanding and searching for Patents
- How to find peer-reviewed journal articles

HW: Lab Report 1 (due 01/30/18 by 11:59PM on OpenWetWare)

Grading Scheme:

50 points – See Rubric

50 points – Peer Assessment (through CATME)