

Texas State Communication Design – Fall 2017

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PediTemp

MARKET RESEARCH

Diabetes in the United States

TECHNOLOGY & COMPETITORS

SKIN PATCHES

These are small patches enclosing sensors that measure blood glucose in sweat and automatically release a dose of insulin to correct high blood glucose. The patch can be attached to your skin so that in the event of low blood glucose levels, it will send a message alert to your smartphone reminding you to eat. Some patch systems already exist but need a wire to transmit data.

CONTACT LENSES

Smart contact lenses that could monitor blood glucose levels through human tears are being explored by Brian Otis and Babak Parviz for Google. Pharmaceutical company Novartis has agreed to license and commercialize them once available. They also are looking to make lenses that could compensate for poor eyesight, which is a common complication among people with diabetes.

It blends an online interface, readily available materials, and digitally manufactured components that reshapes the way home furnishings are designed and distributed

SOCKS AND SHOES

Developments in technology aren't appearing only in the area of self-monitoring. Technological developments also are prevalent in preventing common diabetes complications such as diabetic neuropathy, which can result in limb amputation. Currently, scientists are prototyping socks and shoes with embedded thermal and pressure sensors that can point out specific areas of the feet that have insufficient blood supply. Once this footwear product reaches the market, ideally, a supporting smartphone application would alert the wearer if one area of the foot is not getting blood supply. A nurse or doctor also can use the device to routinely inspect small cuts or soft tissue damage, in which an infection can easily develop. Such technology would greatly minimize the risk of amputations.

APPLICATIONS

OneTouch Verio® Meter

This app can test a drop of blood and tell whether sugar levels are within range, as well as provide a summary of overall health performance.

Diabetik

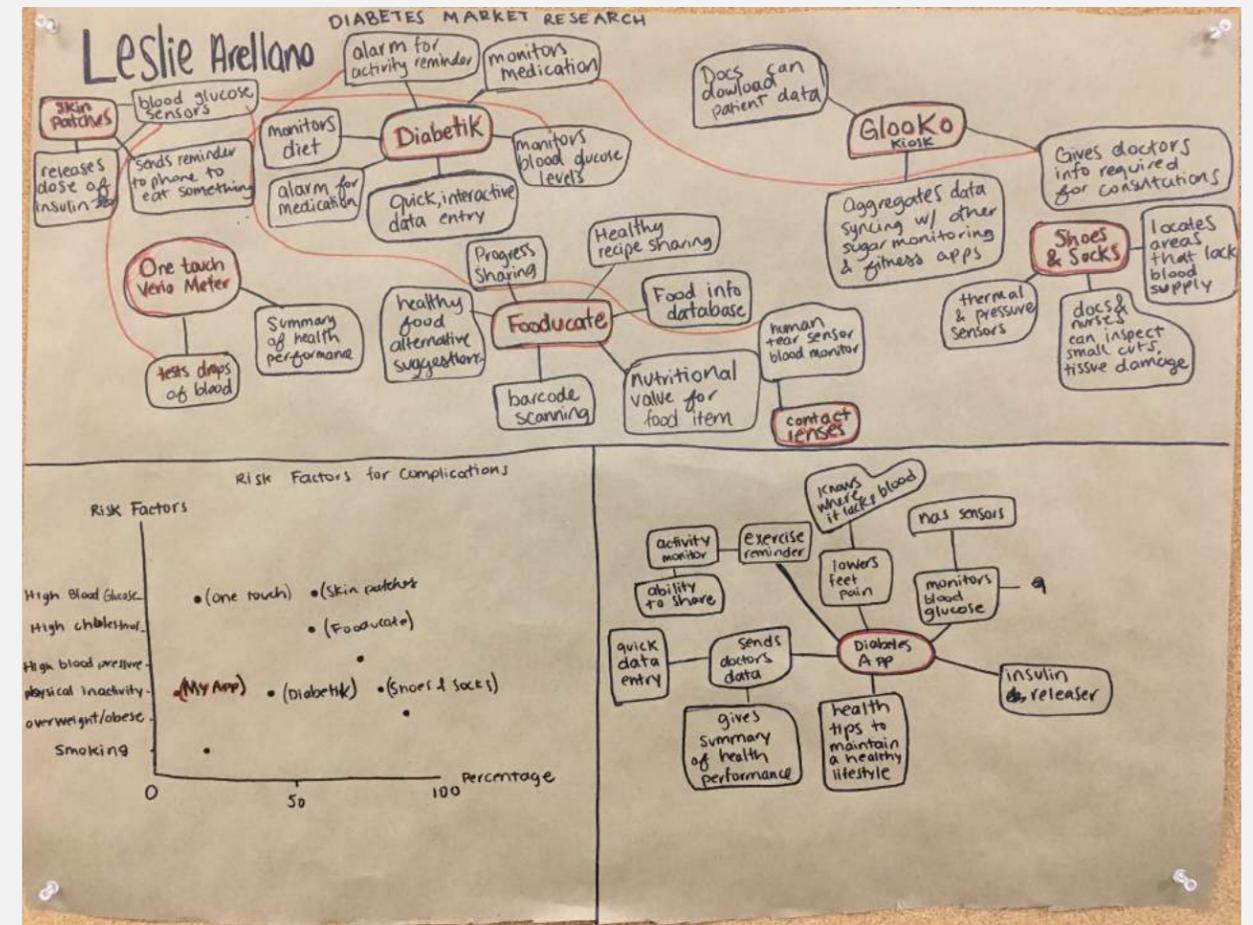
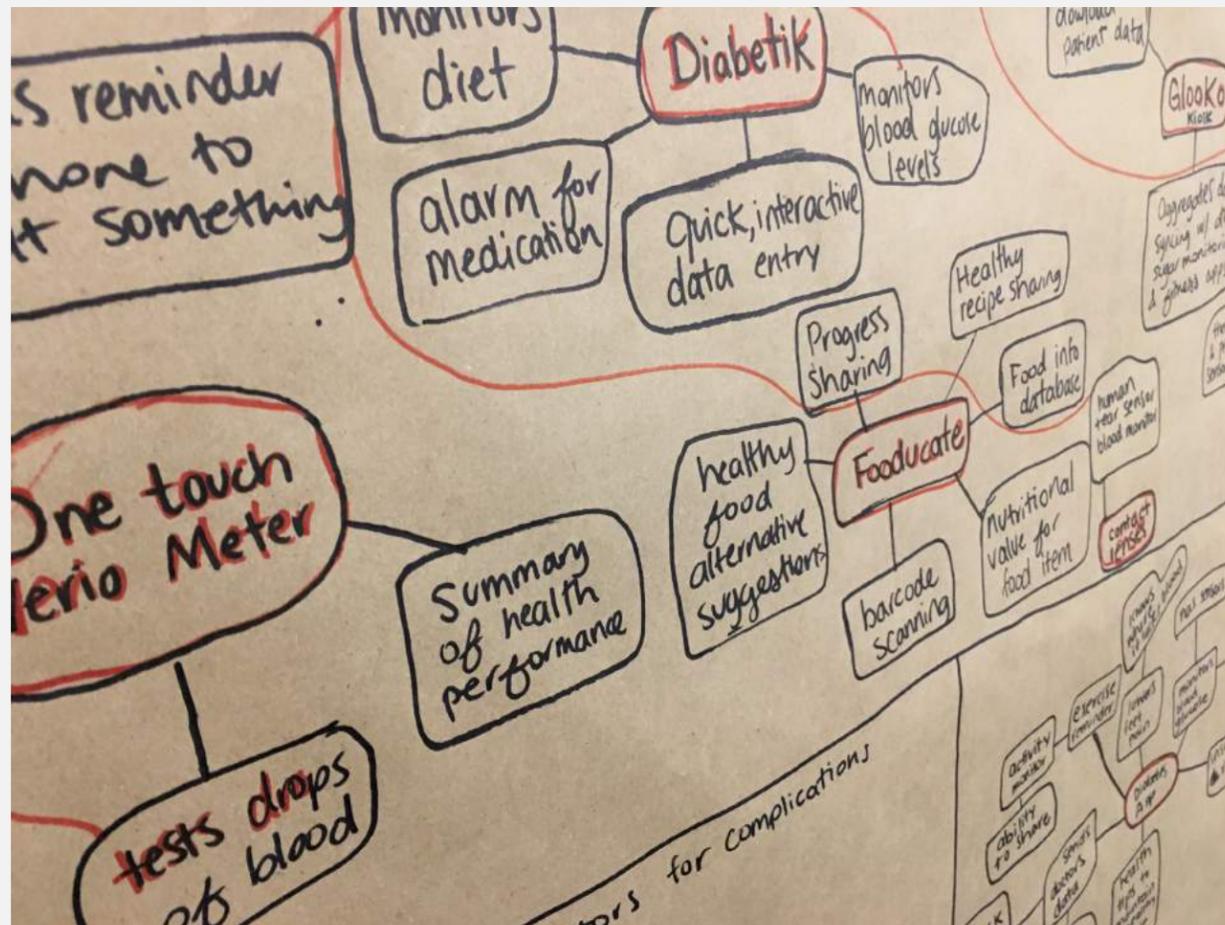
This app is designed for quick and interactive data entry to help those with either Type 1 or Type 2 diabetes monitor their diet, blood glucose levels, and medication. The user can set medication or activity reminders according to time or location.

Fooducate

This app has an extensive database of food information. Through barcode scanning, you can search a food item's nutritional value and wait for the app to suggest healthier alternatives. The app also creates a community in which you can share your progress and healthy recipes.

Glooko

This app is capable of aggregating your biometric data with information gathered through syncing with other glucose monitoring and fitness apps. It allows physicians to easily download patient data through the Glooko Kiosk software, which provides doctors with vital information required during consultations.



Market Competition between products available that is targeted towards diabetics.



American Diabetes Association - Tour de Cure Event

Tour de Cure is the American Diabetes Association's signature fundraising event. As part of my research, I volunteered at the event and was able to speak with the ADA's director and event goers as part of my research.

USER PROBLEMS

Diabetes in the United States

FEAR OF DEVELOPING DIABETES COMPLICATIONS AND THE CHALLENGE OF HOW TO PREVENT OR MINIMISE THEM

Examples:

Diabetic Kidney Problems

Limb amputation

Cataract operations

Trigger finger

Carpal tunnel release operation

Blurring of vision

WORRIES ABOUT ACHIEVING NORMAL RELATIONSHIPS, Siring CHILDREN AND SEXUAL FUNCTION DISAPPEARED AS LIFE PROGRESSED

MONITORING BLOOD SUGAR

INSULIN SHOTS

COST OF MEDICATION AND EQUIPMENT

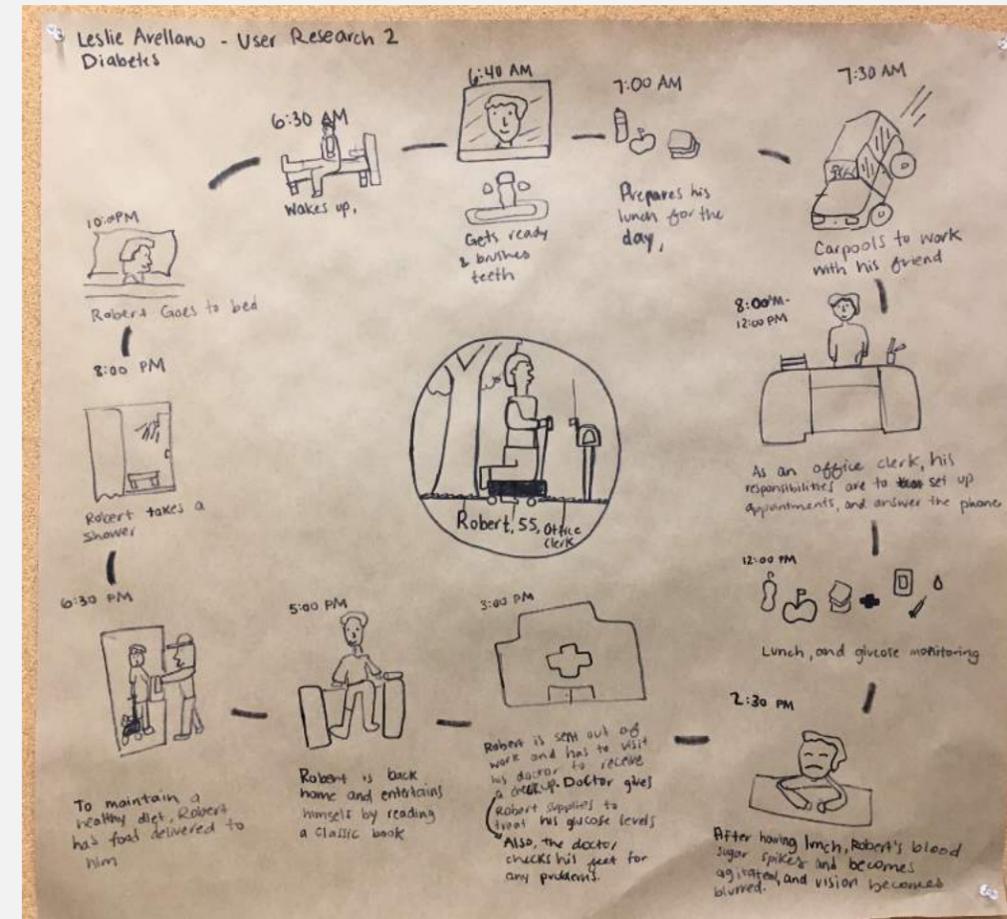
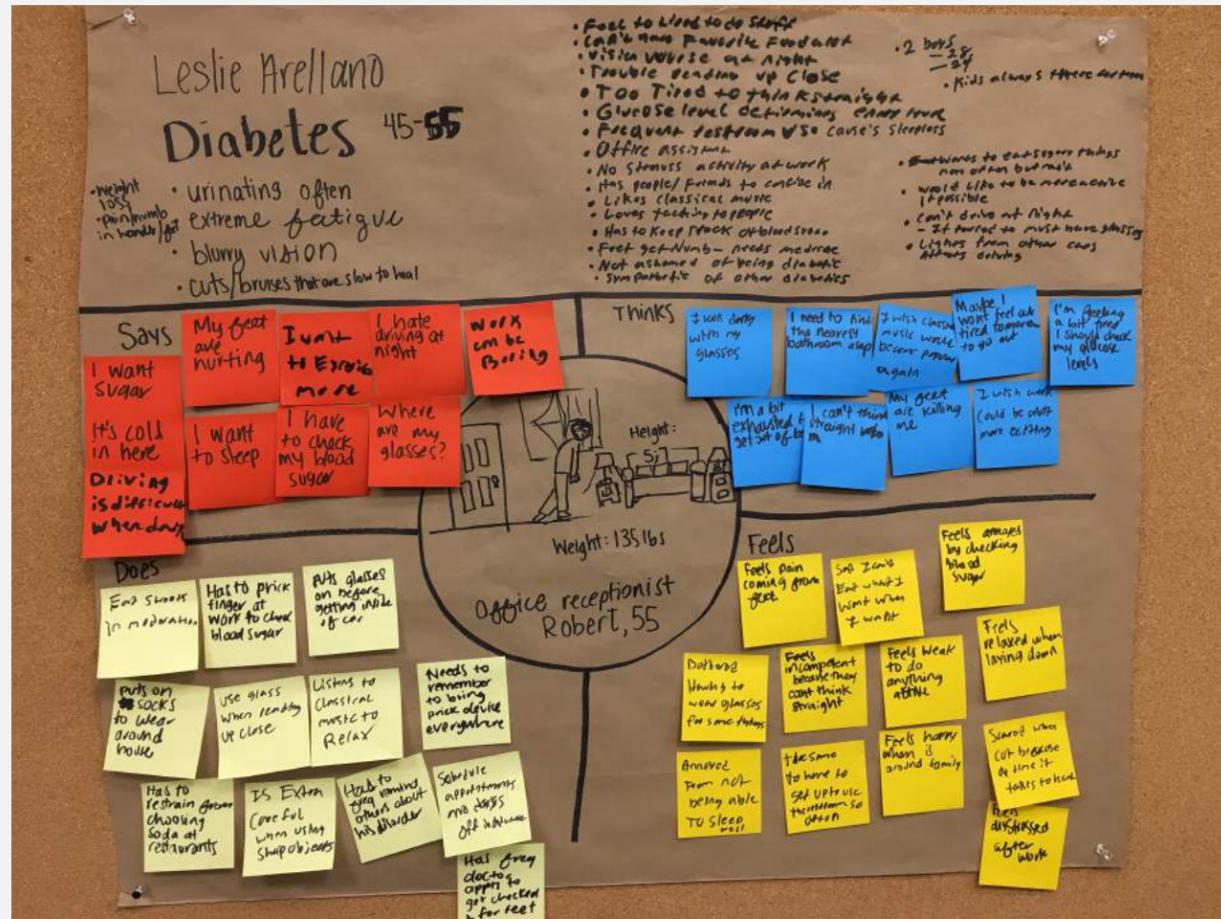
MAINTAINING YOUR H1ac LEVELS

USER: Amelia

55, Factory Worker

Amelia works in a factory and stands up all day for her job. She wakes up early at 6 am and goes from 7 to 4. She is a mother of three children. She was first diagnosed with Type 2 Diabetes when she was 50 years old by feeling the symptoms of blurry vision and fatigue in her body. Since she stand all day for her job, she experiences pain in her feet everyday. She was given medication for her feet but she does not like the effects of feeling tired/sleepy from it so she avoid taking the medication and prefers to use a creme that helps with her feet problems. She cannot drive at night because of her blurry vision and bright lights that hit against her eyes. If she must drive, she wears her glasses. She does not use any mobile application to keep track of her diet or insulin levels. Whenever her blood sugar is sugar, it's mainly caused by not eating anything and can feel jittery because of it.





Target Audience Research

As part of my research towards my target audience, I switched my perspective into understanding how someone diagnosed with diabetes thinks, says, does, and feels. I also drew out an ideal day for someone with diabetes to further gain observation.

FEET COMPLICATIONS

Diabetes in the United States

DIABETIC NEUROPATHY

Irritation or damage to nerves that control sensation in the body. Diabetic nerve peripheral neuropathy tends to affect the nerves farthest away from the brain and spinal cord. People experience burning pain in the feet, numbness, tingling, loss of sensation. Puts them at risk for foot ulceration or foot infection. No effective medications. To avoid it is it to control blood sugar levels.

Diabetics should inspect and look at feet daily for bumps, skin breakdown, blisters and hot and cold areas. Feel pulse in the toes. They should do it in the morning when getting ready or in the evening. Use a mirror to check the bottom of feet. They need to apply moisturizer to the tops and bottoms of feet, avoid putting lotion in-between toes. Wear well-fitting socks and shoes. Be careful when going barefoot.

Globally, an estimated 422 million adults were living with diabetes in 2014, compared to 108 million in 1980
The global prevalence of diabetes has nearly doubled since 1980, rising from 4.7% to 8.5% in the adult population
It caused 1.5 million deaths in 2012, and higher-than-optimal blood glucose caused an additional 2.2 million deaths.
Diabetes will be the 7th leading cause of death in 2030.

29.1 MILLION
people in the United States live with diabetes

1.5 MILLION
people develop a diabetic foot ulcer every year

25%
of diabetic foot ulcers don't heal

100,000
amputations caused by these ulcers every year

What is **Diabetic Neuropathy**?



Loss of sensation in the lower legs and feet



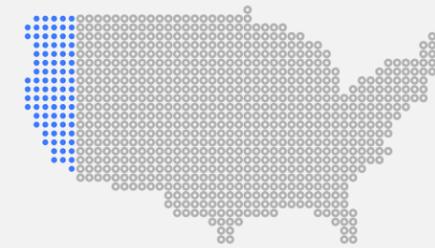
The nerves are damaged due to high blood sugar levels



When minor injuries are present, it may lead to a foot ulcer

60%

Of diabetics will suffer from nerve damage known as **Diabetic Neuropathy**



10% Of the US Population has Diabetes

1.5M

People develop a diabetic foot ulcer every year

7%

Foot amputations occur every year due to foot ulcers



1 in 5 people will require surgical amputation

SOURCES:

<https://www.cdc.gov/media/releases/2017/p0718-diabetes-report.html>

<https://www.mayoclinic.org/diseases-conditions/diabetic-neuropathy/symptoms-causes/syc-20371580>

<https://www.foothealthfacts.org/conditions/diabetic-complications-and-amputation-prevention>