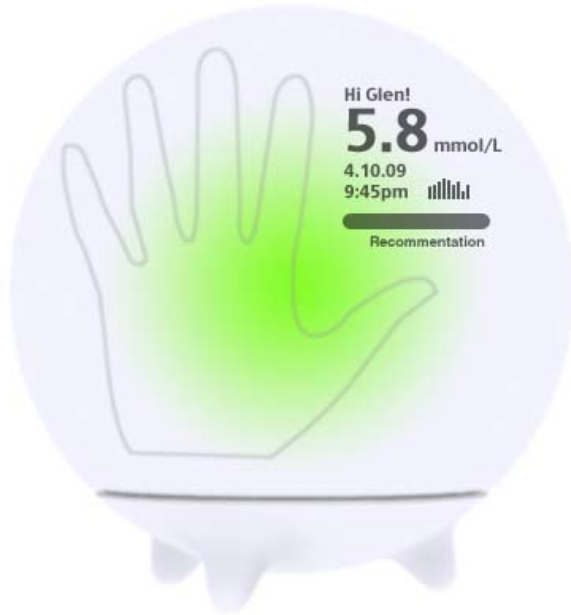


# CARESS

**CARESS Diabetes Mine Design Competition Entry**

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### Orb Technology

Orb Housing: Medium Density Polyurethane  
 Co-molded Lighting: Multi-color OLED Array  
 Biometrics: Ultrasound Vein scanner  
 Glucose Measurement Sensor: Spiral-shaped microwave circuit (Baylor University)  
 WiFi enabled (to communicate with personal computer or mobile device)

Often upon diagnosis of diabetes, people will retreat and internalize. The nature of current glucose meter technology can exacerbate this issue by forcing people to navigate this new landscape by themselves, which in addition to increasing feelings of isolation, can put a strain on relationships with concerned family and loved ones.

Caress is a product platform that combines physical hardware with web and mobile services to provide people living with diabetes a simple set of tools and services to monitor and track their blood sugar levels while providing the opportunity to socialize their experience and educate others. By utilizing an electromagnetic technology developed at Baylor University, users will be able to accurately measure their glucose levels simply by touching or caressing the device, transitioning the blood glucose readings from a painful and awkward, private experience to one that is more naturally habit forming. Hand vein scanning technology will be used to identify and differentiate between the



separate users for tracking purposes in order to allow friends, coworkers and family members to participate in the experience and see their blood glucose levels, promoting better understanding and removing some of the isolation that many people living with diabetes feel. It can also operate to ease the concerns that friends or family often have through visibility. Hand vein scanning was decided upon over fingerprints as it is more accurate and studies have shown that fingerprint scanning has a negative psychological effect as it still connotes criminal behavior, which may present a barrier to usage.

Each Caress device will be networked with bluetooth or WIFI capabilities, allowing readings to be transmitted to the web services component of the platform through home or office computers or mobile devices. Users will be able to access through their computers or mobile devices metrics around their blood sugar levels with the opportunity to receive mobile alerts when it is time to take a reading. Over time, the aggregated

data will provide users with trend data that will help them and their health care providers identify the optimal approach to dealing with their diabetes.





Figure 2.0 - Phase 1 Sculptural Execution - Diagnosis



Figure 2.1 - Phase 1 Sculptural Execution - Scanning



### Mobile Device Skin Technology

Orb Housing: Low density polyurethane  
 Co-molded Lighting: Multi-color OLED Array  
 Glucose Measurement Sensor: Spiral-shaped microwave circuit (Baylor University)  
 Bluetooth Enabled (to communicate with mobile device )

### Phase I

As the electromagnetic technology is fairly nascent, Phase One will focus on creating modern sculptural devices (sample shown figure 2.0) that can be placed in high traffic areas within the home or office. Interior displays beneath the touch surface of the device will provide the user with their current levels as well as relevant trend data. When the device is inactive, the display will show color coded (to represent various glucose levels) dynamic abstract visualizations of the most recent data, providing encouragement and reinforcement of positive behaviors while attracting visual interest to initiate the socialization process.

### Phase II

As economies of scale are achieved with manufacturing, integration of electromagnetic into the skins of mobile devices through a flat radial design will allow for a seamless experience as the skins will be able to get a reading each time the device is used, transmitting readings directly to the mobile device and by extension, the online analytics experience. Unique ring tones can also be setup to remind the user when a reading is required. Mobile device Internet capabilities will allow data to be transmitted to and from the central web servers to either the mobile browser or native application. Integration with other mobile data services can seamlessly provide value add information such as where the nearest grocery or convenience store is or specific recommendation on actions to take to balance sugar levels.