**GlucoTrack Report**

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***Abstract***

GlucoTrack is an app that allows users to keep track of their glucose level by keeping all the patients’ information inside their android portable device. The glucometer works separate from the app, the users can operate the glucometer anywhere and it will be saved into the glucometers memory. When the user decides to save their data into their device they can connect via Bluetooth to the third party app and see all their results on screen. When the user decides on the results that they wish to save they head over to the log results section of the app. The app will ask for the same information they saw on the results page. When they which to retrieve the data all they have to do is click a button and all the data that they have stored will be shown on screen for users to study their result or show them to their health provider. The app also has more features than storing glucometer data. It has a profile page where the users can input personal information about their diet, medication, and basic information about themselves. A tutorial has also been integrated into app for first time users and health tips also for first users who don’t quite know what to just yet.

***Background***

This topic of healthy eating was chosen by Professor Shankar and was assigned to the authors of the study, as well as the method of using a sensor to implement the topic. In the beginning we were given a glucose meter that had a USB connecter. We were told we had to connect the sensor wirelessly so we had to strategize again. With the deadline getting close there was no time to ask Shankar to order a new sensor. We spent a week looking around for a glues meter that was Bluetooth and was compatible with the nexus 7. In the end we chose to use a glucose meter purchased from entraHEALTH. We split the cost three ways and had the device express shipped to make sure we had plenty of time. After several group discussions the group along with our nursing student decided to narrow the scope of the project to focus on end users with diabetes or pre-diabetes. We had plans to add so many different features but with the time restraints we got nearing the end everything was rushed.

***Method***

The integrated development environment or IDE that was used to create the GlucoTrack app was Android Studio. Several libraries was used in order to create the app, but they were contained within the scope of android studios and no other external or third party libraries were installed in Android Studio. SQLite was used to create the database that stored the user’s information, blood sugar readings, and food log directly on the device. Additionally our art student used Photoshop to design the graphic user interface, the logo and any other images that we used for the app.

***Results***

The results of the app are generated thanks to a third party app from Entra Health. The company let us use their glucometer and code to access the glucometers memory. The glucometer takes a small amount of blood and calculates glucose levels. Before it gives you the results it asks what activity one was doing before the blood sample was taken that way it can give a more accurate result. Once it stores it in memory you can look at the screen of the glucometer for saved results one at a time. When the app is opened and users go into the profile page they will see a button called get results which will launch the third party leaving the current app in the background.

Once the third party app is opened, one has to have Bluetooth enabled on device. The sensor up button has to be hold for three seconds and it will activate the Bluetooth on glucometer. Once that is activated the app will find the sensor and connect to it. A notification on top of the app will let you know if is connected or not. If multiple glucometers are being used than one has to check serial number of sensor by retrieving serial number from deice and making sure it matches on back of sensor. It will also give you the MAC Address if the user knows it for verification. All results will be displayed on screen and will remain even if glucometer is turned off or disconnected.

The user know will go back to GlucoTrack and click on log results. Here the user will be asked for the information displayed on the third party app. The data will be stored inside the phone using SQLite so it is available to the user at all times. At a click of a button the information is displayed on a pop out window and the user can scroll throughout the results. The user will be able to store as many results as their internal memory allows them too. It is very helpful for the user to be able to study their results and make changes to their diet or life style. It also helps keep information organized for the next visit to their health provider.

***Discussion***

Based on the research we have done we noticed that people struggling with diabetes were not doing a good job at keeping track of their diet or their blood glucose. It is important for people with diabetes to keep track of their glucose readings because it affects your health. Diabetics also need to keep track of the food that they eat since the food they eat directly affects their blood glucose level. Because of this we created a way of sorting glucose readings and a log of the food you eat, liquids you dink, and any medication that you take. We have also given you healthy eating tips like, like a guide of what food to eat, and links to other sites and apps that will help the use live a healthier life. With the glucose results and food log you can take the information that you have collected and show it to your primary healthcare provider. With this information your healthcare provider can give you a more accurate reading and better advise you on further actions to keep yourself healthy. With the glucose sensor we were limited to focusing our app on diabetics instead of having a more broad space for healthy eating. In the future we want to implement augmented reality to help with a food guide. The augmented reality would help you with portioning the food on the plate. In the future expanding into a whole cooking app that uses augmented reality.

***Conclusion***

In conclusion we did accomplish what we set out to do when we made this app by syncing it to the glucose meter wirelessly to the android device. We weren’t able to accomplish all of our goals that we set for ourselves. We ran into limitation of time. If we had more time I believe we could have mad everything we wanted work and add more stuff to the app. We are very satisfied for with what we accomplished and have learned a lot on this journey making GluccoTrack.

***Reference***

* http://www.entrahealth.com/wp-content/uploads/2015/05/English2.pdf
* http://developer.android.com/develop/index.html
* Android Studio Development Essentials by Neil Smith, 2014, CreateSpace Independent Publishing Platform; 2 edition, 978-1500613860

***Appendix***

* https://github.com/HealthCareApps/Group-11-Healthy-Eating.git