# -Cover Page-

Skin Spot Surveyor - S3

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**Software Hardware Code Design**

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# -7 Sentence Abstract-

There comes a time in everyone’s life when one realizes that he or she is not invincible. That wellness is a blessing and sickness cannot be avoided, for the most part. As the largest organ in the human body, the skin is susceptible to a number of ailments and conditions. The most common include: moles, chickenpox, acne, rashes, hives, eczema, skin cancer and rosacea.

It is advisable to see a healthcare provider for each of those conditions. But does it make sense to keep going back and forth to a doctor’s office? Imagine having the ability to send, in essence, a picture of your condition as time progresses to your doctor. Wouldn’t that be nice? Now there's an app for that, with Skin Spot Surveyor you can do just that.

The concept is to reduce unnecessary time to and from the doctor’s office, while keeping your provider updated on the latest changes in your skin’s condition. Skin Spot Surveyor is designed to enable the user to take pictures of various skin conditions, store them securely and allow access to providers at your choosing. Thus, allowing for quick feedback, potential life saving diagnosis, appropriate care, and treatment of skin conditions.

# -Background-

In an age where chronic illness is plaguing the healthcare field in is imperative to encourage individuals to take an active role in their own health promotion and prevention. Many of the illnesses and diseases today are result of lifestyle choices and modifiable risk factors. South Florida has one of the highest incidence rates of nonmelanoma skin cancer (Nestor & Zarraga, 2012). Educating and promoting health and well-being is essential to minimizing illness and disease in the future. Technological advancements in the healthcare industry, such as our smartphone application, the Skin Spot Surveyor, allows for individuals to identify, track, and monitor questionable skin lesions.

In addition, storage of patient data will be confidential and shared with appropriate health care providers allowing for more fluid information sharing, better patient-provider communication, and early identification and treatment of troublesome lesions. Lastly, our application is an educational source for individuals and provides prevention measures that are backed by the latest research and evidence.

Sun damage prevention is key to promoting healthy skin here in Florida as excessive exposure to sun can damage skin cells and is linked to nonmelanoma and melanoma skin cancers. According to the National Cancer Institute, individuals who are at high risk are those who have fair skin, burn easily, have freckles, light colored eyes and hair, geographic location near equator, weakened immune system, and high sun exposure must be educated and vigilant in taking measures to prevent skin cancers. Screening and early identification of cancerous lesions decreases complications including death associated with skin cancer.

Our application will provide individuals with the tool, information, and resources to promote their well-being and skin health in hopes to reduce the incidence of sun damaged skin and cancerous skin lesions.

# -Methods-

## Process

From the software engineering side, we used Android Studio to develop the functional part of the app. We used java to program the activities and xml for the layouts. For each “screen” in the app we have a separate class and layout to control the content and functionality in logical segments. When sharing codes across individual devices we used Github as a means of version record keeping and a way to store and access the latest updates. Each screen had art attached to it provided by the art designer.

For our visuals, we would use Photoshop to draw out and design our interfaces. These were sent to the engineering team and were integrated into our app. Our clinical advisor used her own nursing expertise and research skills to provide heaps of information regarding accurate skin care facts that will be available to users of the app. She also guided the interactive content that is concerned with analyzing the pictures to be taken so that the information provided by users is precisely what the health care professional will be looking for.

## Team Dynamics

We were very fortunate to have a hard working and collaborative group of students. News came in that many groups are operating without an Art or Nursing student, that wasn’t the case for us. Our team members did a wonderful job at staying focused and communicated in a timely manner. We can genuinely say we didn’t have any major problems in the group. Everyone put in time, work efficiently, and delivered when they were called to do so.

The technical segment consisted of Ryan Keller, a Computer Science major, Andrew Kippenhan a Computer Science and Engineering student and Frantz Dumornay as the Computer Engineering undergrad. Robin Taber single handedly handled the creative aspect of the app project. Tina Torres wasted no time on making sure we had as much clinical information necessary to get the app on the right path.

# -Results-

|  |  |  |
| --- | --- | --- |
| Initial starting app page | Beta Login page | Testing the camera feature |
| Prevention Screen | Resources Page | Log In Finished Product |

# -Discussion-

That being said we had our share of challenges, including technical, programming, formatting, user interface, and graphics. Mostly in part to our novice skill set and the knowledge and skills needed to accomplish our desired project. We had to find a way to make a visually appealing android app, that had complex functions, and that could store data, including pictures securely.

One of our biggest challenges was to come up with a database that could hold pictures and content. We made sure this database would be interconnected so that users and health care providers had access to the same data. In addition we wanted to educate our users on health skin habits and various conditions such as: moles, chickenpox, acne, rashes, hives, eczema, skin cancer, and rosacea.

The core problem came forth when we had problems with activating the camera, browsing the linked clinical sites, and saving usernames and passwords. Long hours and hard work paid off and the camera activation was successful. Although, the excitement was short lived, as a new set of challenges emerged, it seemed as if it was our apps mission to malfunction with every picture taken. In addition store the picture file for access by latter uses became a problem that had to be fixed. Having the beta version working was a breakthrough.

Lastly, we had to overcome the challenge of making our app aesthetically pleasing while not compromising its functionality. Even with the help of a great art student and graphics handler making sure the designs were compatible with screen sizes took more attempts than we would’ve liked. Learning from our experience it became apparent the importance of staying educated on the best tools to solve a specific problem.

# -Conclusion-

Overall we are satisfied with the Skin Spot Surveyor. We had a great deal of learning to do and are happy how much we’ve accomplished. Not all of our apps parts were functioning as desired upon completion of the semester and this leaves room for future work and aspirations. Going in, our Java Programming skills were very low and this presented to be a challenging project to attempt. We learned to work with databases and integrate them into our app. In addition we needed to make certain that it was compatible with Google Drive and that we had a working layout in android. Time constraints also limited our ability for completion of our app. On a more positive note our group benefited from collaborative team dynamics allowing for our final product, a functioning app. Good communication, respect for each other, dedication, and hard work allowed for a positive work environment and contributed to much of our success.

# -References-

National Cancer Institute: PDQ® Skin Cancer Prevention. Bethesda, MD: National Cancer Institute. Date last modified <MM/DD/YYYY>. Available at: http://www.cancer.gov/types/skin/patient/skin-prevention-pdq. Accessed <02/28/2016>.

Nestor, M. & Zarraga, M. (2012). The incidence of nonmelanoma skin cancers and actinic keratosis in south Florida. *The Journal of Clinical and Aesthetic Dermatology, 5*(4) p. 20-24

Opening Graphics: [www.youtube.com/watch?v=-oUEzanVsXA&feature=youtu.be](http://www.youtube.com/watch?v=-oUEzanVsXA&feature=youtu.be)Video Presentation: <https://www.youtube.com/watch?v=ZOXYWGcOnyg&feature=youtu.be>

# -Appendix (Github)-

Full version history: <https://github.com/HealthCareApps/Group-5-Healthy-Skin/tree/with-login>