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Title

Handheld Device for Skin Lesion Imaging on Any Portion of the Body for Dermatology Diagnostics

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Peer reviewed



Handheld Device for Skin Lesion Imaging on Any Portion of the Body for Dermatology Diagnostics

Madison Blampied (Biomedical Engineering), Donya Khashayar (Biomedical Engineering), Micah Lawrence (Biomedical Engineering), David Lopez Castro (Biomedical Engineering), Justin Salamanca (Biomedical Engineering), Lindsey Thomas (Biomedical Engineering)

Mentor: Christine King Ph.D, Hadar Ziv, Christian Johnson (Founder & Inventor) MBA
Department of Biomedical Engineering, Department of Informatics and Computer Science



PROJECT GOAL

Current skin cancer devices focus on one aspect - prevention or detection. Our device addresses both.

By helping to prevent skin cancer by making it easier to apply sunscreen and detecting skin lesion protection, we hope to reduce the amount of people diagnosed with skin cancer each year.

TEAM ORGANIZATION

Marketing and Business Strategies

- Madison Blampied, BME
- Donya Khashayar, BME

Product Design

- David Lopez Castro, BME
- Justin Salamanca, BME

Manufacturing

- Micah Lawrence, BME
- Lindsey Thomas, BME

TEAM ORGANIZATION CHART

Marketing and Business Strategies

- Market analysis
- Growth potential
- Survey the market and customers
- Pitching strategy
- Distribution channels

Product Design

- Develop potential designs in Solidworks
- Test multiple sunscreen bottles' compatibility
- Test cameras

Manufacturing

- Investigate potential materials
- Prototype testing
- 3D printing and manufacturing

PROJECT DESIGN

- Our device is wireless and entirely portable to suit the lifestyle of our on-the-go consumers.
 - Measurements of the device aim for a comfortable, one-handed use.
 - This compactness allow users to take this device anywhere they want
- The main focus of our device and its design is that it will serve as a multi-purpose invention for sunscreen application and identification of skin lesions.
- Our design will have an app that will be the bridge between users and their dermatologists.
- Users will benefit from the convenience of rechargeable batteries.

PROJECT TIMELINE

Task Summary	Winter Quarter			Spring Quarter										
	W9	W10	W11	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11
- First Gen Prototype Design														
- First Prototype Fabrication														
- Winter Design Review Presentations														
- Prototype Feedback														
- Prototype Testing & Redesign														
- Electronic Testing & App Interfacing														
- Provisional Patent Application														
- Prototype Finalization														
- Business Competition														
- Quality Assurance														
- Engineering & BioEngine Design Symposium														

Design and Prototyping

Project Performance and Control

DEVICE VALIDATION

This device will address skin cancer prevention by aiding the user in applying sunscreen in often overlooked areas. Our mobile app created in conjunction with our ICS counterparts will have image detecting algorithms to detect skin lesions and provide analysis, addressing skin cancer detection, and preventing late stage melanoma diagnosis.

Contact Information

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STANDARDS

- ISO 10993 : Ensure device biocompatibility
- ISO 52910-18 (for additive manufacturing/3D printing)
- IEC 60601 : Electronic Safety guidelines to ensure proper user protection
- ISO 14971 : Device risk management and analysis
- ASTM F04.15 : Material Testing