

UV Alarm

Team



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Project Overview



Samsung Gear S application that detects UV level and informs users of their sunburn risk.

Project Overview

Current Features:

1

Detect current
UV level

2

Estimate
time before
getting
sunburn

3

Pop-up
notifications

4

Input for
sunscreen
application
(SPF, When)

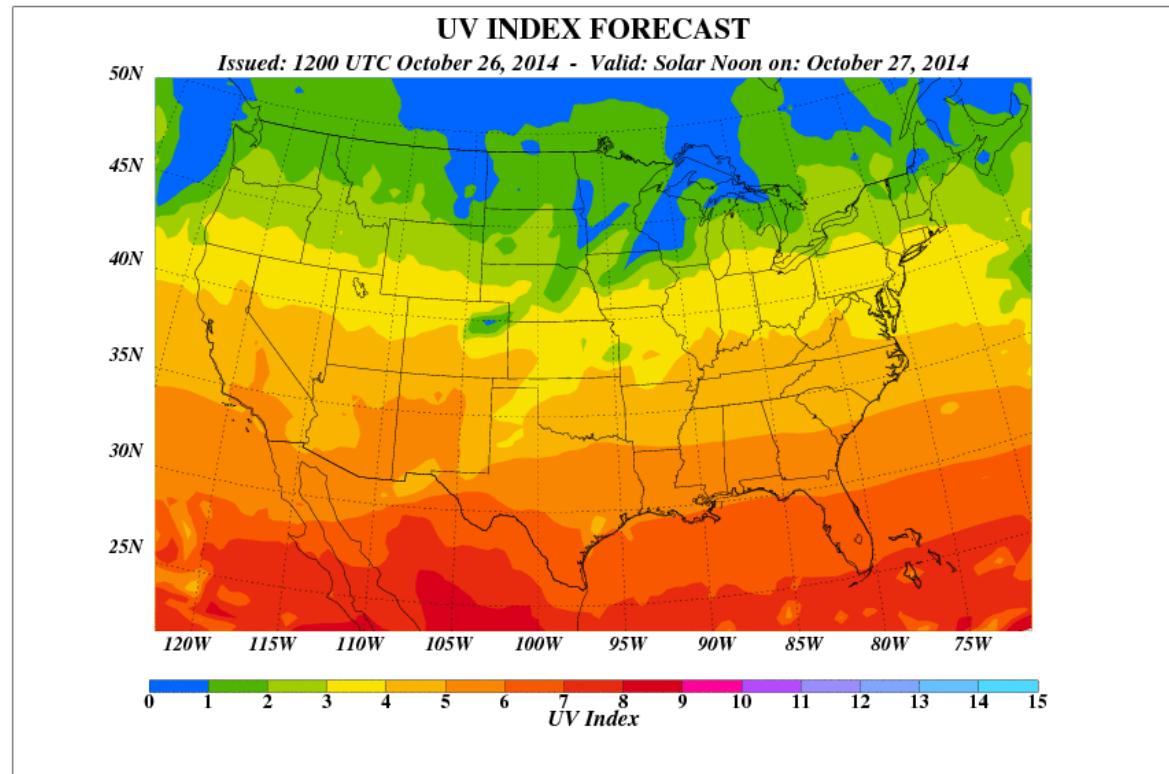
Expected Outcome

In evaluation, we expected to see positive feedback about being more aware and preventing sunburn.



UV index

Samsung Gear S
UV sensor API
returns numeric
values based on
UV Index

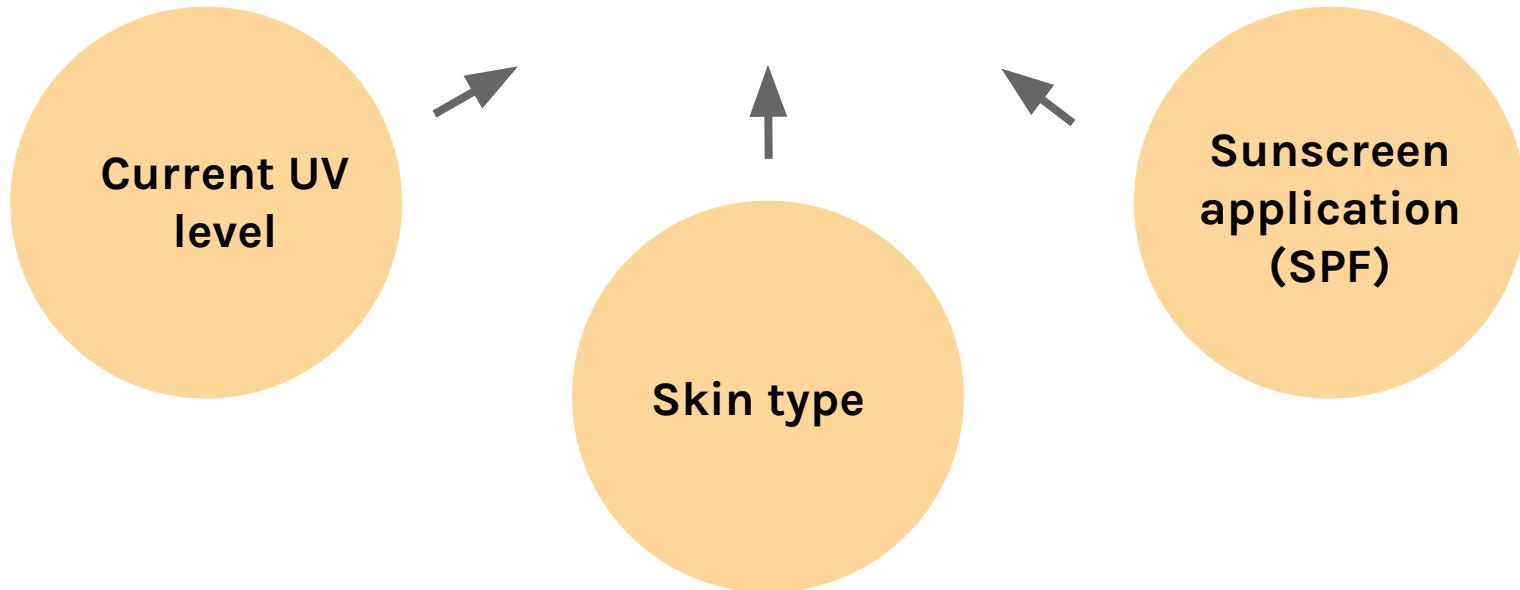


Skin types

	SKIN REACTION EXAMPLES	SKIN TYPE
1.	Tans little or not at all; burns easily and severely, then peels.	People most often with fair skin, blue eyes, freckles, white unexposed skin
2.	Usually burns easily and severely (painful burn); tans minimally and lightly; also peels.	People with fair skin, blue or hazel eyes, blonde or red hair, white unexposed skin.
3.	Burns moderately; gains average tan.	Average Caucasian, white unexposed skin.
4.	Burns minimally; tans easily and above average with each exposure.	People with light brown skin, dark brown hair, dark eyes, white or light brown unexposed skin (Asians, Hispanics, and Mediterraneans).
5.	Rarely burns; tans easily and substantially.	People with brown skin, including brown unexposed skin. (East Indians, Hispanics, etc.).
6.	Tans profusely and never burns.	People with black skin (Africans and African Americans, Australian and South Indian Aborigines).

Our algorithm

Calculate time before sunburn



Demo



Evaluation Results

Confusion with time : we need to work more on visual communication.

“Hmmm, is it about time with sunscreen? How long I am wearing sunscreen? (we added “before sunburn” to clarify)”

“I don’t think sand clock is a good metaphor here. I associate it to waiting. Maybe better to use battery charger kind of image?”

Evaluation Results

Users may be interested in information about degree of sunburn.
(e.g. light, moderate, severe)

“I don’t carry sunscreen all the time but if I am getting bad sunburn, I will go under the shade.”

“I want to know how bad sunburn I am getting in case I don’t have sunscreen.”

Key Obstacles

Samsung Gear S is not released yet.

Without real device and sensor, we haven't explored much on data processing.

Expected problems; sensor data fluctuation

- angle of device
 - may need to identify the angle by gyroscope and determine data quality?
- need to have reference point
 - There's open data of daily predicted UV index. We can use it as a reference point in case that we don't have reliable sensor data.

Next step

- Get Samsung Gear S !!
- Work with real sensor data and develop a program for data processing
- Create more interaction (e.g. notification through vibration, showing severeness of sunburn, taking age factor etc)

Questions?

Thank you!

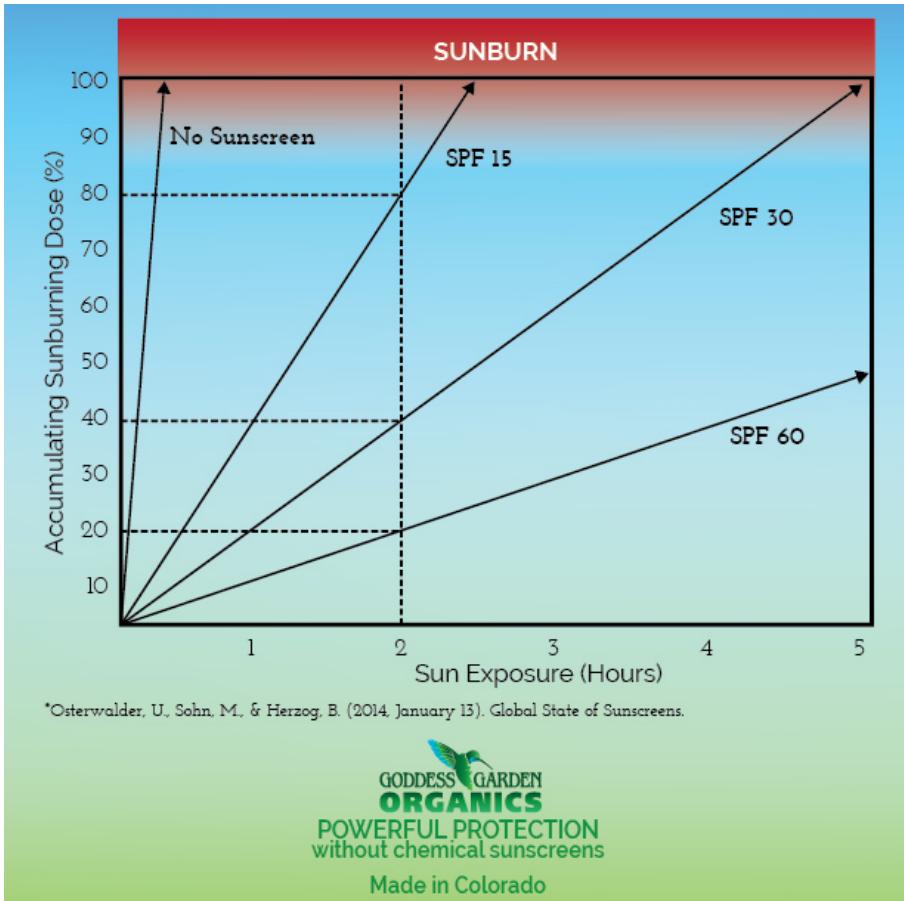
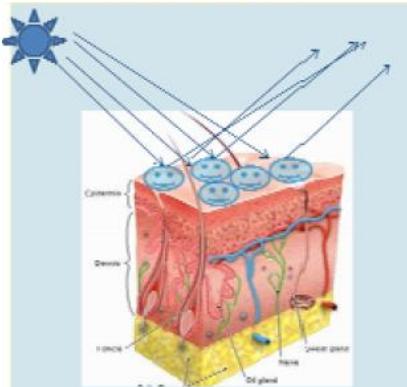
Sunburn risk

Depending on skin types, risk to each UV level are different.

UV Index	Skin Type			
	I and II	III and IV	V	VI
	low	low	low	low
	medium	low	low	low
	high	medium	low	low
	high	medium	medium	low
	very high	high	medium	medium
	very high	high	high	medium

Sunscreen protection

Sunscreen slows down the speed to reach the accumulative UV level that causes sunburn.



**GODDESS GARDEN
ORGANICS**
POWERFUL PROTECTION
without chemical sunscreens
Made in Colorado

Our algorithm

Time before sunburn = skin resistant time + sunscreen protection time



Daily MED of each skin type
- accumulative UV dose

SPF * base time

Sensored UV level *
skin type factor

Evaluation Results

People are not paying attention to devices all the time.

I got severe sunburn while sleeping on the beach. I didn't wake up for a while and my skin was all red. It hurt.

Key user insight 1

People are generally aware of UV risk and have needs for real-time detection and notification.

I like the idea of app informing UV level. It is not visible otherwise.

I got severe sunburn the other day while watching a game in studium. I was not aware of how strong UV was and wish I applied sunscreen earlier.

Key user insight 3

People need actionable information.

I am not sure what %
(accumulative UV Dose /
Daily limit) means. What
should I do with it?

Hmmm.