

TECHNOLOGY BLUEPRINT TITLE (Smart Band)

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- Group Name** : Smart Band
- Group Members** :
 1. Amzar Zafri bin Alimi
 2. Nur Izzati binti Hasim
 3. Nurul Najihah binti Ameruddin
 4. Siti Nur Syafiqah Bazila binti Mohd Busro
 5. Wan Nurul Munirah binti Wan Hamdan

Submitted to
HJH ZANARIAH BINTI ZAINAL ABIDIN

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file personal info

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CHAPTER 1

1.0 PRODUCT DESCRIPTION

1.1 Introduction

In this developing country, there are a lot of emissions released from factories, cars and heating boilers which contain nitrogen oxides and sulphur dioxide. Due to the rainy seasons, there are high chances of rainwater to become acidic when in contact with these pollutants. On the other hand, the atmospheric levels of ozone-depleting substances (ODS) have rapidly increased nowadays. Because of this issue, there are high chances of UV rays that can penetrate through the ozone layer. After initial observation towards these issues, the team has come out with the Smart Band device. This device is a wearable computer device in the form of a strap band with a touchscreen interface used to monitor and detect the amount of UV and pH level that is exposed to our skin. The Smart Band will display the UV measurement and help the users in applying the right amount and quantity of sunblock on a daily basis through Smart Band apps. This Smart Band will display the pH level of the rain too. Thus, people need to be aware of when to protect themselves from acid rain.

1.2 Purpose of development

The purpose of the product development is:

- To measure the UV radiation and pH level according to the weather.
- To display the current temperature and relative humidity on the device screen.
- To recommend the suitable skin protection factor (SPF) and remind the user to protect themselves from UV radiation and acid rain.

1.3 Product Concept

- For users to know the amount of UV radiation and pH level of acid rain
- For users to apply their sunblock with the SPF recommended
- For users to protect themselves from dangerous acid rain by wearing protection

1.4 Application

This device will be activated by sun and rain. The amount of UV radiation and pH level will be display on the screen as contact with the sunlight and rainwater. After being activated, it powered by the user's smartphone via near field communication (NFC) technology. All stored data will be relayed to the accompanying app through an easy single touch function where the user only needs to tap My Smart Band apps against their smartphone to have the app updated.

1.4.1 Functions

Band strap - A band strap is a piece of silicone wristband which function to attach the device.

GPS Sensor - GPS satellites broadcast radio signals which function to locate user position.

UV Sensor - UV sensor contain active acknowledge (ACK) feature with threshold windows setting allows the UV sensor to send out a UVI alert message. This sensor will convert UV light intensity to digital data on the screen of device.

pH Sensor - pH sensor provides all of the functionality needed to detect changes based on a delta voltage at the sensor.

Bluetooth Sensor - Bluetooth sensor function is to create a network of remote sensor devices that report their data to the Smart Band apps. The data on the temperature, relative humidity, UV and pH will be displayed on the apps directly.

Solar panel - Solar panel consist of polycrystalline silicon solar cells able to convert energy from the sun for additional battery life.

Temperature and Relative Humidity Sensor – Additional features to measure temperature and relative humidity

1.5 Unique features

The uniqueness of the product for availability in Malaysia market consists of:

- pH level of acid rain
- reading of relative humidity

1.5.1 Picture description

FEATURES	
1:	Weather symbol
2:	Temperature & Relative Humidity
3:	UV level
4:	SPF (Skin Protection Factor)
5:	pH level
6:	pH level indicator
7:	Band strap
8:	Battery level
9:	Solar panel
10:	UV level indicator
11:	Time for skin to burn
12:	Detachable screen

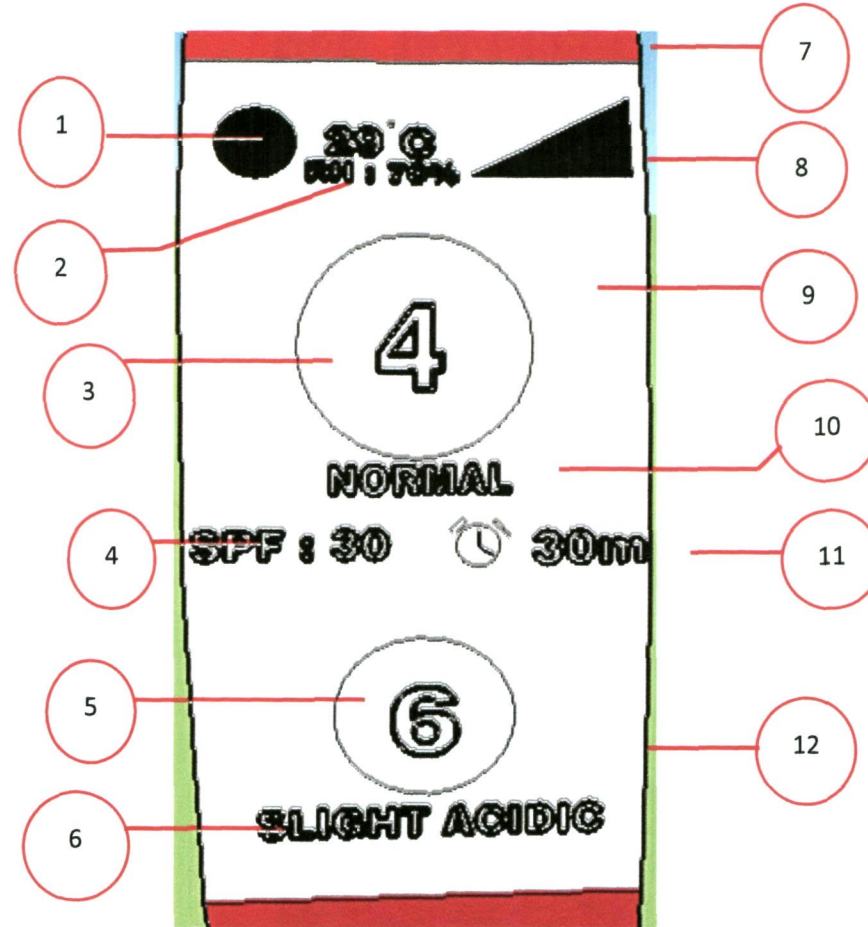


Figure 1: Product design of Smart Band device