PRODUCT SPECIFICATION REPORT
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1.0 Introduction

MakeMeUp Project is a device that processes by changing the pixel values of wanted face regions. It does this by 2 RGB cameras , 2 IR Sensors, 1 Barcode scanner , 1 CPU with end technology operating system, 1 Screen and a software program.

The RGB cameras will take the colored image of face. According to the data that comes from IR sensors, the device will create 3D mapping of face with it's regions and the software will create 3D rendering of the face. Customer will be able to see his/her face with 180° of view. While that process if the user make the product is read from barcode scanner, the process will start. From the data that will come from barcode scanner will match the datas which was already implemented to the database and it will take the pixel values of the specific Make Up product. The pixel values will be changed with the pixel values of the customer's face which are already taken from RGB cameras.

After these processes the software will hold the images at it's database and the customer will be able to see what are the processed images and the first neutral image that was taken from cameras. Thus will help customer to compare whether the product fits her face or not.

Also thus will help Make Up Companies to hold the data which products are in demand by looking the history database of the tried make up products.

2.0Product Specifications

2.1 Hardware Part

2.1.1Camera and Sensor Specifications for MakeMeUp: For MakeMeUp, the device's camera and sensor requirements must be as follows:

- Device will have Two RGB cameras with 1280x960 resolution or higher that helps to capture a color image possible. Cameras have 43° vertical by 57° horizontal field of view.
- There must be one infrared emitter and IR depth sensor for both RGB cameras. The emitters emit infrared light beams and the depth sensors read the IR beams reflected back to the sensor. The reflected beams are converted into depth information measuring the distance between an object and the sensors. This makes capturing a depth image possible.
- Use the cameras within its specified operating temperature range 41 to 95 degrees Fahrenheit (5 to 35 degrees Celsius). If the sensor is exposed to an environment outside of its prescribed temperature range, turn it off and allow the temperature to stabilize within the specified range before you use the sensor again.
- place the sensors and cameras on a stable surface in a location where it will not fall or be struck during use

- Connect the power supply for your sensors and cameras to an external power source.
- The depth sensor reads depth information from reflected light. Objects that are highly reflective (mirrors and shiny metal) or highly absorptive (fluffy and/or dark materials) may not be registered by the depth sensor as successfully as other objects.
- Image processing will take 10msec.

2.2 Display Part

2.2.1 Screen Specifications: For MakeMeUp, the device's minimum screen properties are as follows:

- Screen resolution is 1920x1080.
- Screen refresh rate by Hertz min 50 Hz
- Screen size Max 17 inch
- Will work between -20° and +50°

2.3 Practical Use

2.3.1 Size: MakeMeUp is a artificial make up box like automated teller machine for banks.

- The length of our product at least should be average women height in the world. Total length of our product should be 1.70cm (+-5cm). MakeMeUp has a screen, keyboard, barcode scanner, camera system and two spot light. At the top of the MakeMeUp, two spot light will be sited. Camera system should take place at eye level, it means that height from the ground should be 1.60cm(+- 5cm). Below the camera system, screen should be placed and it's size should be a standard 13' laptop screen and keyboard also should be a laptop keyboard but in the box keyboard will be hidden. It means that keyboard will be covered in box because of elegance appearance. Whenever

seller needs to enter something via keyboard he/she easily reaches to keyboard by holding cover up. Barcode scanner's should take place below at the left hand side of the screen.

The width of the MakeMeUp should be 40cm(+-5cm).

Because of the elegance appearance, MakeMeUp's outer surface should be covered by mirror.

2.3.2 Weight: The total weight of product should be 11kg(+-5kg).

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- weight of screen should be 2kg(+-2kg).
- weight of camera system should be 1.5kg(+-0.5kg).
- weight of barcode scanner should be 1kg(+-0.5kg).
- weight of spot lights should be 0.5kg.
- weight of the cover should be 6kg(+-3kg), it depends of the material of cover.

2.4 Speed

Image processing will take nearly 10msec. For this process the mimumum requirements of operating system should be as follows:

2.4.1 PC Specifications for MakeMeUp : For MakeMeUp, the device's minimum operating system

- Windows 7, Windows 8, Windows Embedded Standard 7, or Windows Embedded POSReady 7
- 32 bit (x86) or 64 bit (x64) processor
- Dual-core 2.66-GHz or faster processor
- Dedicated USB 2.0 bus
- Min 2 GB DDR3 RAM

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2.5 Power Specifications

2.5.1 AC Adapter:

- 65W universal
- should have 3 pin jack
- 100-240V ~1.5A
- must be around 50-60Hz
- +5 °C to +45 °C (+41 °F to +113 °F)

2.5.2 Battery

- Average life of battery of laptop is around 1 +/- 0/5 hour.

2.6 User Interface In Engineering Terms

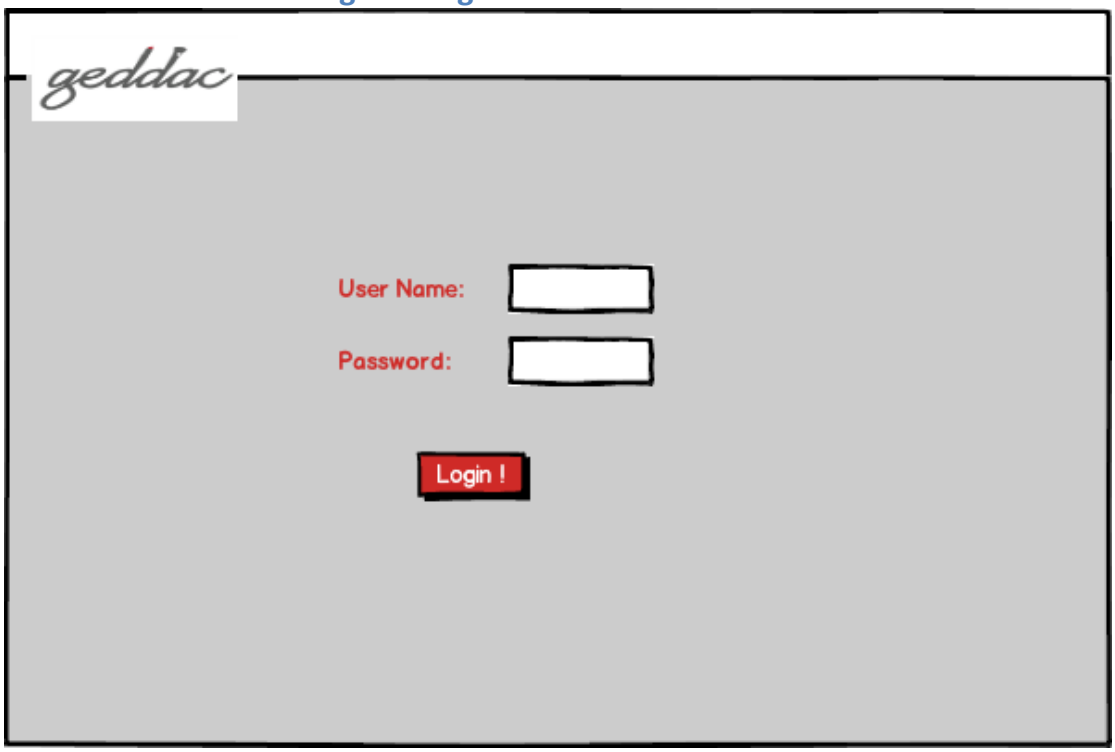

Figure 1 - Login page for seller

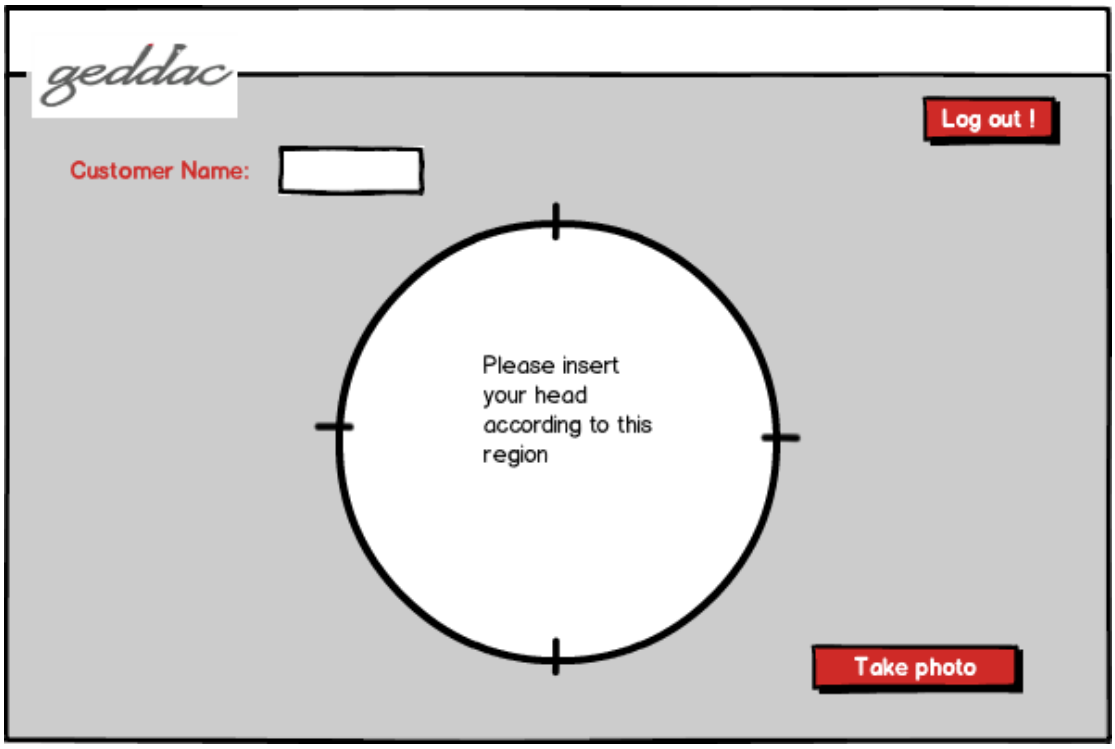

Figure 2 - Take customer photo page

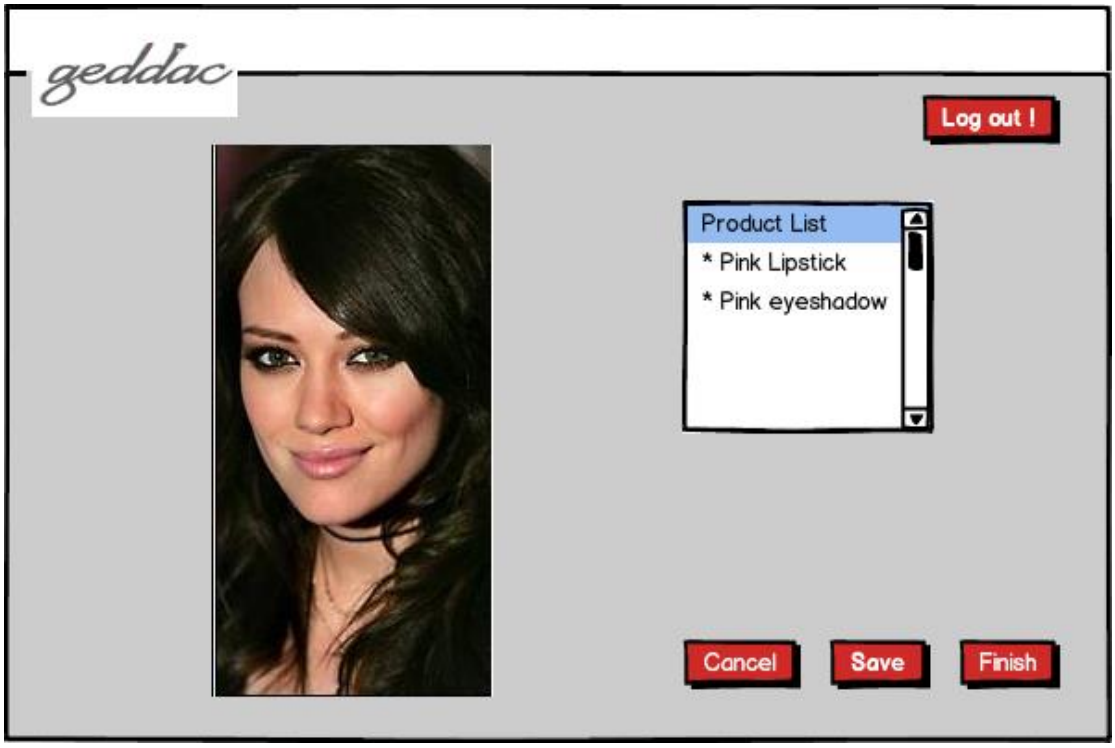

Figure 3 - Processed Image Window

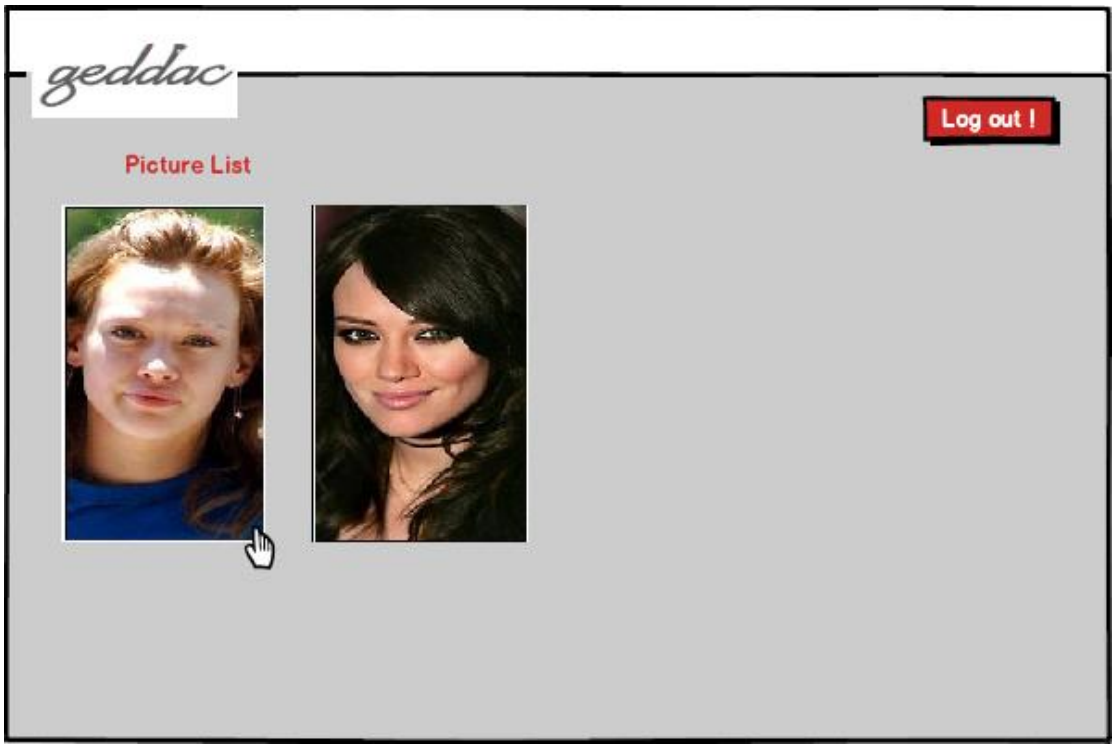

Figure 4 - Customer photo list

MakeMeUp product has several screens. These screens are **Login window**, **Taking photo window, Processed Image window** and **Photo List window.**

Login window is created for sellers because of following activities of seller like which seller sells how many of each product. All seller has own user name and password, which are given by the make up company. After than entering all correct information and clicking the **Login button**, System opens a taking photo window. If the seller wants to stop and log out from the system, seller can press **Logout button** anytime.

In the Taking Photo window,seller enters customer name and starts applying all steps to customer, which are specified by seller likes do not show your teeth, stands specific distance away from the MakeMeUp and so on. After than implying all steps correctly, seller presses **Take Photo button**. At that time, seller is scanned product barcode to barcode scanner so that system shows product list,

which is included applied product names, and customer processed image. If the customer likes her photo and wants to tries different products, seller presses **Save button** for saving image to Picture List and continues process on the first main photo. If customer does not like customer processed image and she wants to tries different products, seller presses **Cancel button** for do not saving image to Picture List and continues process on the first main photo. If customer wants to finish shopping, seller presses **Finish button** for showing all photos in the Picture List. In this action seller can select products, which will be sold. Whenever seller wants to log out from the system, seller can be log out from the system via pressing **Logout button**.

3.0 QFD