



ShowMi Technology Inc.

Test Plan for the

MagicMirror

SHOWMI

Project Member: ChangShuo(Tony) Feng

Xukai(Aaron) Zhong

Ziye(Nick) Zhu

HongJi(Terrence) Dai

YanJie(Jenny) Zhan

Contact Person: ChangShuo (Tony) Feng

csfeng@sfu.ca

778-385-2407

Submitted to : Andrew Rawicz (ENSC440W)

Steve Whitmore (ENSC305)

School of Engineering Science

Simon Fraser University

Submission Date: March 38th, 2016

Version: 1.0



1. Unit Test

At *ShowMi Technology Inc.*, the *MagicMirror* will undergo a significant amount of testing procedures before it is put into use and finalized for product production to ensure it meets all the functional specifications suggested by the requirements. More specifically speaking, each part of the system will be tested separately first to ensure the meeting of the requirements. Then, the parts will be combined into the product where stress tests for temperatures, sustainability and power consumption tests will be performed to make sure the product meets the international standards.

1.1 Monitor Test

Monitor is the central displaying unit of our system. The monitor will be tested using standard 110V power outlet and the adapters that come along with the monitor to see if monitor works correctly. After testing power function of the monitor, a VGA cable will be used to connect with a desktop to make sure that the monitor can receive signal and that the VGA port on the monitor functions properly.

1.2 Distance Sensor Test

Distance Sensor acts as the switch for our system, hence will be tested. Currently distance sensor is connected on a breadboard with Arduino acting as the control. Since the sensor we are using is an ultrasonic sensor which can sometimes cause high uncertainties after a small movement. So we will try to test the distance sensor using a small LED and give it a total trial of 10 times and measure how many times the LED would light up if objects are placed in front of the sensor and whether there is disruption of connection or not.

1.3 LEAP Motion RealSense Camera Test

The RealSense camera is the operational control for the system, customers will need it to complete the interactions with the system. Hence it is important for proper testing done on the camera. First of all, the power of the sensor will be tested to make sure that there is no



overheating which may cause potential risks. Secondly, the x and y axes movement of the sensor are tested to make sure the sensitivity is suitable for users and that the result is consistent. Lastly, the pinch gesture which stands for left click in the system will be tested to make sure that the acquisition of the signal is on point and correct.

1.4 UI/Webpage Application Test

The UI/Webpage Application is a central part of our design as it displays all the information needed and provides interaction with customers. The UI/Webpage Application will be tested on our developing computer first to ensure that all the proper functions work with no front-end bugs. Since the information of the product will be connected with our database, so we will simulate functions such as scanning barcode, checking item information, adding items to cart, generating barcode and updating item information after checkout is done. These processes will be repeated no less than 5 times to ensure system stability and the correct update of the information.

1.5 2D-Barcode/QR Code Scanner Test

Scanner is what we use as the initiation of the Webpage/Application. It will be tested by scanning certain generated QR code and see if it actually displays the correct and accurate information as generated. Once this step is made sure, we will test the power stability of the scanner to make sure that the scanner will be on all the time once the power is on and that there is no sudden disruption of services or risks created such as overheating of the device.

1.6 Mini-Desktop Power Test

Mini-Desktop is the central processing unit of our product, hence it is very crucial to the success of the product. We will test the mini-desktop by making sure that the system can run almost error-free when we are operating it like other normal desktops. Also, we will make sure that it can endure the 110V standard voltage supply for a long period of time without any breaking down of services. Lastly, we will test on the temperature performance of the mini-desktop to see whether it can cool down itself.



2. System Test

7.1 System Power Test

First the integration of the system will be performed whilst power is off, that is to say all the parts integrated will be integrated together including the distance sensor, the mini-desktop, the mirror, the wooden frames, the monitor, the scanner, the webpage application and the RealSense camera. After integration, the whole system will be connected to the power adaptor and all the components should be able to obtain power through the central power adapter.

2.2 System Integration Test

After system power test is completed, the system will be tested as a whole no less than 10 times to ensure the stability of the system. These tests include first placing an object in front of the sensor to make sure that the monitor turns on. Once the monitor is turned on, we should be able to interact with the system using gestures through RealSense camera and corresponding mouse commands should be able to be accomplished and all the functions including scanning the barcode, checking storage information, adding items to cart and self-checkout. Lastly, once the operation is done and the object leaves the range of the distance sensor, the system should revert back to its original start after 5 seconds and make itself available for further instructions.