CHAPTER-6

EXPERIMENTAL ANALYSIS

6.1 INTRODUCTION

This chapter focuses on system working process analysis based on various factors like Bluetooth connectivity, blade choosing and chopping of vegetables. The prominent feature of this analysis is that, it highlights the overall features of the proposed system such as performance, efficiency, risks and cause and effect for that risks are been analyzed. With the help of this analysis, we can able to know the performance and efficiency of the proposed system for each input provided. This chapter provides a view on the Bluetooth connectivity between the system and mobile phone, response of a proposed system for each user request through the mobile app and chopping ability of machine on various kinds of vegetables. The analysis made on various kinds of vegetables based on their size, nature of the vegetable whether it is soft or hard, shape, etc,.

6.2 ANALYSIS

The analysis is made on the proposed system on the basis of their modules such as, Bluetooth connectivity between the system and mobile phone, response of a proposed system for each user request through the mobile app and chopping ability of machine on various kinds of vegetables.

6.2.1 Bluetooth connectivity between Mobile Phone and Vegetable Cutter

For the module1 Bluetooth connectivity between mobile phone and Vegetable Cutter three test cases are tested and passed. These are the three scenarios for the first module. The secondary considerations and the expected output and status and the remarks for the respective first module scenarios are for checking the machine without any power supply. And in the expected output no process instantiated and the status is passed now. And next is with power supply, in the expected output the machine is started, then the test case is passed.

6.2.2 Choosing the type of blade from the mobile application

For the module 2 choosing the type of blade from the mobile application, four test cases are tested and passed, here the mobile application which provided was paired with the vegetable cutter through the Bluetooth device. These are the four scenarios for the second module. The secondary considerations and the expected output and status and the remarks for the respective second module scenarios is mobile application, the secondary consideration is find out the availability of the Bluetooth devices And in the expected output the needed Bluetooth device (HC-05) availability is found and paired and the status is passed now. And next is the choosing small type blade through the mobile app, where the stepper motor functionality is checked, in the expected output the stepper should change the correct blade in the slicer platform, then the test case is passed. And next is the choosing large type of blade through the mobile app, where the stepper motor functionality is checked, in the expected output the stepper should change the correct blade in the slicer platform, then the test case is passed. And last test case is activating the pneumatic cylinder through the mobile app, after loading the vegetable the “START” button is pressed in the mobile application, in the expected output the Pneumatic cylinder is activated to chop the vegetables, then the test case is passed.

6.2.3 Chop the vegetables using Pneumatic Cylinder

For the module 3 chopping the vegetables using Pneumatic Cylinder, seventeen test cases are tested, from that 11 test cases are passed and 6 test cases are failed. I this module the vegetables are loaded into the slicer platform for chopping the loaded vegetables into the desired shape where it is chosen by the user. The vegetables are chopped with the help of pneumatic cylinder, which get activates when the start request is generated by the user and it is controlled by Direction valve controller (DCV). These are the seventeen scenarios for the

third module.

The secondary considerations and the expected output and status and the remarks for the respective third module scenarios is Onion, the secondary consideration is the vegetable onion should be in normal size, the expected output is it should be chopped into the desired shape of blade chosen, the status is passed now and remark is Onion is sliced into shapes based on the type of blade chosen. And next scenario is Tomato, the secondary consideration is the vegetable tomato should be in normal size, the expected output is it should be chopped into the desired shape of blade chosen, the status is passed now and remark is Tomato is sliced into shapes based on the type of blade chosen. And next scenario is Potato, the secondary consideration is the vegetable potato should be in normal size, the expected output is it should be chopped into the desired shape of blade chosen, the status is passed now and remark is potato is sliced into shapes based on the type of blade chosen.

And next scenario is Carrot, the secondary consideration is the vegetable carrot should be in normal size and it should be loaded in equal halves, the expected output is it should be chopped into the desired shape of blade chosen, the status is passed now and remark is Carrot is sliced into shapes based on the type of blade chosen. And next scenario is Radish, the secondary consideration is the vegetable radish should be in normal size and it should be loaded in equal halves, the expected output is it should be chopped into the desired shape of blade chosen, the status is passed now and remark is radish is sliced into shapes based on the type of blade chosen. And next scenario is Ladies Finger, the secondary consideration is the vegetable onion should be in normal size, the expected output is it should be chopped into the desired shape of blade chosen, the status is failed now and remark is Ladies finger is can’t able to sliced into shapes based on the type of blade chosen.

And next scenario is Ginger, the secondary consideration is the vegetable ginger should be in normal size, the expected output is it should be chopped into

the desired shape of blade chosen, the status is passed now and remark is ginger is sliced into shapes based on the type of blade chosen. And next scenario is Beetroot, the secondary consideration is the vegetable beetroot in normal size and it should be loaded in equal halves if the dimension is larger, the expected output is it should be chopped into the desired shape of blade chosen, the status is passed now and remark is beetroot is sliced into shapes based on the type of blade chosen. And next scenario is Cabbage, the secondary consideration is the vegetable cabbage should be in normal size, the expected output is it should be chopped into the desired shape of blade chosen, the status is Failed now and remark is Cabbage is can't able to sliced into shapes based on the type of blade chosen, since the natural size of the vegetable is very large.

And next scenario is Edible tuber, the secondary consideration is the vegetable all kinds of Edible tuber should be in small size, the expected output is it should be chopped into the desired shape of blade chosen, the status is passed now and remark is all kinds of edible tuber is sliced into shapes based on the type of blade chosen. And next scenario is Ivy Gourd, the secondary consideration is the vegetable Ivy Gourd should be in normal size, the expected output is it should be chopped into the desired shape of blade chosen, the status is passed now and remark is Ivy gourd is sliced into shapes based on the type of blade chosen. And next scenario is Squash gourd, the secondary consideration is the vegetable Squash gourd should be in normal size, the expected output is it should be chopped into the desired shape of blade chosen, the status is Failed now and remark is Squash gourd is can't able to sliced into shapes based on the type of blade chosen.

And next scenario is Brinjal, the secondary consideration is the vegetable Brinjal should be in normal size, the expected output is it should be chopped into the desired shape of blade chosen, the status is Failed now and remark is brinjal is can't able to sliced into shapes based on the type of blade chosen. And next scenario is Drumstick, the secondary consideration is the vegetable

Drumstick should be in normal size, the expected output is it should be chopped into the desired shape of blade chosen, the status is Failed now and remark is drumstick is can't able to sliced into shapes based on the type of blade chosen, since size of the vegetable too long. And next scenario is Snake gourd, the secondary consideration is the vegetable Snake gourd should be in normal size, the expected output is it should be chopped into the desired shape of blade chosen, the status is Failed now and remark is Squash gourd is can't able to sliced into shapes based on the type of blade chosen, since it is naturally too long in size.

And next scenario is Sabre bean, the secondary consideration is the vegetable Sabre Bean should be in normal size, the expected output is it should be chopped into the desired shape of blade chosen, the status is passed now and remark is sabre bean is sliced into shapes based on the type of blade chosen.

And next scenario is Air Compressor testing, the secondary consideration is the without using the Air compressor in the system, the expected output is no action in Pneumatic cylinder, the status is passed now and remark is without the usage of air compressor, we cannot operate the DVC and Pneumatic cylinder.

6.3 SUMMARY

The modules that were subjected to experimental analysis for the developed proposed system involves the basic Bluetooth devices pairing, mobile app connectivity and the instant response from the system for user request. The development process in this context refers to the workflow framing, modules connection, coding and integrating the code into the modules considered. The proposed system is analyzed with various process buildings scenarios. The considered scenario reflects the checkpoints that co-exist along with the possibilities. The scenarios that were considered also give a brief idea on how the system behaves.. Total number of scenarios for analysis the entire proposed system is 24, out of which the number of failed scenario is 6. The first

module Bluetooth connectivity between the vegetable cutter and mobile phone consists of three scenarios that are analyzed, from analyses all the three scenarios provides a pass status and positive remark; hence the first module satisfies a good performance and efficiency. The second module choosing the type of blade from the mobile application consists of four scenarios that are analyzed, from analyses all the four scenarios provides a pass status and positive remarks, hence the second module satisfies a good performance and efficiency. The third module chopping the vegetables using Pneumatic cylinder consists of seventeen scenarios that are analyzed, from analyses eleven scenarios are passed and six scenarios are failed, hence the third module partially satisfies a good performance and efficiency of the proposed system. These failed test cases are due to the size, nature of the vegetable whether it is soft or hard, shape and weight that are been loaded. Excluding the failed scenarios remaining 18 scenarios pass which marks the success of the digital vegetable cutter.