




Test Specification Report

by 

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1. INTRODUCTION

1.1 OBJECTIVES

The purpose of the Test Plan is to document the approach that we will use for testing at each stage of the project. In design specifications part of this document, we will specify the requirements of the test approach and in the case specifications part we will define test cases which are identified by test design specifications. Testing is one of the crucial parts of software developing. By the help of testing the developers achieve quality assurance, verification and validation, and reliability estimation. Therefore, it must be applied to every module of the project considering all the possibilities of problems and bugs, so that the difficulties at the next phases of the project can be minimized.

In the Network Traffic Monitoring Project, we have a few modules which were described in other documents in detail. Although we are testing the modules while developing them, testing each case during implementation is not possible. Therefore, errors are inevitable and additional testing is required both for each module and for the whole project. Our main objective as a group is to release our product with minimum bugs. By applying our testing plan, we will be able to find out and correct our bugs. In this concept, we first test the individual modules separately, second we verify whether these modules communicate correctly when they are integrated and third we make a whole system test. This report gives the methodologies for the testing of our project. After specified testing, the project will fulfill the user requirements and have the desired quality.

1.2 SCOPE OF THIS DOCUMENT

This document describes the testing phase of the Network Traffic Monitoring project. First we specified the requirements of the test approach that are specific to our project. Then we defined test cases according to these requirements. Although, there are various testing

methods we developed our testing plan using the methods that are applicable to our project. We also considered the importance of these methods on our product in the plan.

In this report, firstly we have included the major constraints in our testing procedure; secondly we mentioned the specific properties and functionalities we are going to test in each module and in the whole system; thirdly we talked about the testing tools, the duty assignments for testing process and our test schedule. At this point it is important to emphasize that every detail in our test plan is decided by considering the specific properties of our project and the major constraints that we have for testing (i.e. time, hardware). We tried to develop a testing plan which is adequate for a hardware project with wireless functionality.

1.3 MAJOR CONSTRAINTS

1.3.1 Time

In our testing schedule, time is one of the main constraints for us. In this aim, we have determined the deadlines for the testing phase.

1.3.2 Software

In this project, we have two types of software modules: AP400 module and Pic module. The Ap400 module includes code about serial connection and it also includes bash script codes for parsing the necessary information. The Pic module also includes code about serial connection and it includes the Graphical Lcd and button codes which are mainly about menu design specifications.

1.3.3 Hardware

For a successful testing, we must have sufficient hardware. For the testing issues, we first get a few wireless supported laptop PCs. After getting them, we started to run our system and

made necessary connections with PCs. Our hardware parts are mainly: AP400, PIC16F877, PCB, RS232 and Graphical LCD Display.

1.3.4 Staff

We are a group of 4 but the testing phase will be conducted by Hasan Tahsin Kilic and Yetkin Sakal. While one of them is busy with the general procedures on the system, other one will be responsible for making the necessary connections between AP400 and several other computers.

2. TESTING PLAN

2.1 SCOPE OF THE TEST PLAN

Testing process of the project includes unit testing, integration testing, performance testing and stress testing:

- Unit Testing: The unit testing part will be specific to the modules in the project (ap400 module, pic module).
- Integration Testing: This part of the testing procedure will be responsible for the overall performance of the parts of the general system.
- Performance Testing: This part is for the actual environment of the project. For this aim, we implemented a general test case.
- Stress Testing: This part is for testing the project in abnormal cases.

2.2 UNIT TESTING

We have two units to be tested: Ap400 unit and PCB unit.

2.2.1 AP400 UNIT TESTING

To test the Ap400 tool, we checked the all necessary components of it and we connected to it with several wireless supported PCs. We examined the necessary code segments on it to take the necessary information from its sensors and send them to the pic16f877 via rs232.

2.2.2 PCB UNIT TESTING

To test the PCB tool, we again checked all of the necessary components on it and then after running the system, we checked the necessary parts if they are working or not. For this aim, we checked the buttons and graphical LCD display.

2.3 INTEGRATION TESTING

After completing the unit testing part of our testing procedure, we became sure that the ap400 and pcb parts of our project works correctly. After this process, we test them as a unique unit to see the integration of them. For this aim, we ran the system as a whole with wireless supported PCs and all project units.

2.4 STRESS TESTING

This part is maybe the most important part of our testing procedure. For this aim, we made lots of connections to be able to see the limits of our product. In this process, we made connections to our module with lots of PCs at our dormitory. After that, we ran the system to be able to see the performance.

3. TESTING TOOLS

We used the following tools while testing implementing the testing procedures:

- Cutecom
- CCS C Compiler
- WinPic800
- Tftpserver

4. TESTING STAFF

- Hasan Tahsin Kilic : Unit Testing, Stress Testing
- Yetkin Sakal: Integration Testing, Performance Testing

5. TESTING SCHEDULE

- Unit Tests: June 1 - June 5
- Integration Tests: June 5 – June 6
- Performance Tests: June 6 – June 7
- Stress Tests: June 9