TESTING

System should not be tested as a single, monolithic unit. The testing process should therefore proceed in stage where testing is carried out incrementally in conjunction with system implementation. Errors in program components may come to light at a later stage of the testing process. The process is therefore an iterative one with information being fed back from later stage to earlier part of the process.

7.1 TYPE OF TESTS

The various stages that were used in testing this software were as follows: Unit testing

1. Unit testing

2. Integration testing

3. System testing

   • Validation testing

   • Black Box testing

   • White Box testing

4. Acceptance testing

7.2 Unit testing

Unit testing Individual components are to ensure that they operate correctly. Each component is tested independently, without other system components. This system was tested with the set of proper test

data for each module and the results were checked with the expected output. Unit testing focuses on verification effort on the smallest unit of the software design module. This is also known as MODULE TESTTNG. This testing is carried out during phases, each module is found to be working satisfactory as regards to the expected output from the module. In our project, we test it by changing images and we get a correct identification.

7.3 Integrated testing

Integration testing is another aspect of testing that is generally done in order to uncover errors associated with flow of data across interfaces. The tested modules are grouped together and tested in small segments, which makes it easier to isolate and correct errors. This approach is continued unit we have integrated all modules to form the system as a whole. The program for image detections stored in Raspberry Pi memory.

7.4 System testing

System testing is actually a series of different tests whose primary purpose is to fully exercise the computer-based system. The following are the system tests that were carried out for the system.

• Validation testing:

The validation testing can be defined in many ways, but a simple definition that validation succeeds when the software functions in a manner that can be reasonably expected by the end user.Here, we changed the threshold values and observed the changes. By varying its values we see changes in its effect and find a correct value.

• Black Box testing :

Black Box testing is done to find the followings.

1. Incorrect or missing functions.

2. Interface errors.

3. Error in external database access.

4. Performance error.

5. Initialization and termination error.

• White Box testing :

This allows the tester to.

1. Check whatever all independent paths within a module have been exercised at least once

2. Exercise all logical decisions on their and false sides

3. Execute all loops and their boundaries and within their bounds

4. Exercise the internal data structure to ensure their validity

5. Ensure whether all the possible validity checks and validity lookups have been provided to validate data entry.

7.5 Acceptance testing

Acceptance testing is a test conducted to determine if the requirements if the specification or contract are met. It may involve physical or performance test. Software developers often distinguish acceptance testing by the System provider from acceptance testing by the customer prior accepting transfer of

ownership. In case of software, acceptance testing is performed by the customer is known as User Acceptance Testing (UAT), end user testing, site testing (Acceptance) or field testing (Acceptance).In Acceptance testing the Raspberry Pie is going to compare, if compared image is same as the stored data's.

7.6 Test Cases

☐ Objective: Set of real world objects are given to the system for testing and checks whether the sign board identifies or not.

☐ Data :

SL.NO

DATA GIVEN

EXPECTED RESULT

OBSERVED RESULT

SL.NO	DATA GIVEN	EXPECTED RESULT	OBSERVED RESULT
1	Sign board	Identified	Identified
2	Signboard shape	Identified	Identified
3	Speed limit number	Identified	Identified
4	Hexagonal shape	Not Identified	Not Identified

5   Signboard stand   Not Identified   Not Identified