bnb321-Requirements Verification

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Requirements:

Requirement 1.1: "This application is able to classify different mechanical keyboards by analyzing the sound come from the keyboard, assuming that it works in a quiet environment."

Requirement 1.2: "This application would display the result of classification given a certain sound input."

Requirement 1.3: "This application would be able to classify at least 2 kinds of typical mechanical keyboard switch."

Requirement 2.1: "This application could work in a normal environment where there might be some noise. "

Requirement 2.2: " This application would be able to display the FFT graph of the input signal."

Requirement 2.3: "This application would be able to classify at least 3 kinds of switches."

Instruction and Test:

Requirement 1.1: "This application is able to classify different mechanical keyboards by analyzing the sound come from the keyboard, assuming that it works in a quiet environment."

Validation 1.1: Run Test 1.1

Test 1.1: Executes unit test that plays a recording file of key stroke. Upon completion, compares the category of key switch and the result. Test will be passed if the result is correct.

Requirement 1.2: "This application would display the result of classification given a certain sound input."

Validation 1.2: Run Test 1.2

Test 1.2: Executes unit tests of Test 1.1 and monitor the status of the output label, if the text content is the result of the classification, the test will be passed.

Requirement 1.3: "This application would be able to classify at least 2 kinds of typical mechanical keyboard switch."

Validation 1.3: Run Test 1.3

Test 1.3: Executes more than 2 unit tests of Test 1.1 and if all the results are correct, this test is passed.

Requirement 2.1: "This application could work in a normal environment where there might be some noise. "

Validation 2.1: Run Test 2.1

Test 2.1: Executes unit tests of Test 2.1 that plays a recording file of key stroke which recorded in a normal environment. Upon completion, compares the category of key switch and the result. Test will be passed if the result is correct.

Requirement 2.2: " This application would be able to display the FFT graph of the input signal."

Validation 2.2: Run Test 2.2

Test 2.3: Executes unit Test 2.2 that plays a recording file. Upon completion, compares output file of Test 1.2 with reference file, which was obtained from MATLAB. The comparison ensures each value is within +/- 0.1 of the values found in the reference implementation.

Requirement 2.3: "This application would be able to classify at least 3 kinds of switches."

Validation 2.3: Run Test 2.3

Test 2.3: Executes more than 3 unit tests of Test 1.1 and if all the results are correct, this test is passed.