

Morse Code Simulator

Test Plan

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Pattern Matching

Rationale:

The application user will enter/input a stream of motion patterns composed of SHORT and LONG through the motion detector. However, there is a possibility that some of the patterns cannot be decoded into an English alphabet as there is no particular entry for it in the Morse Code coding table. This test is conducted to examine the expected outcomes of the decoder application given a set of valid and erroneous inputs.

Setup:

1. Import assert library.
2. Import the source of decoder.
3. Create a decoder object.
4. Initialise an array with a motion pattern. The array must compose of bits of only '0' or '1' to simulate LOW and HIGH signal respectively.
5. All the delays such as the delay between a signal or between characters must be included in the array as well where appropriate.

Procedure:

The array created will be fed into an assertion function along with the characters that are expected to be decoded from the particular pattern.

- Valid Input
 - Input: [1,0,1,1,1, 0,0,0, 1,1,1,0,1,0,1,0,1]
 - Expected result: 'AB'
 - Actual test result: TRUE

- Invalid Input
 - Input:
[1,0,1,0,1,0,1,0,1,0,1,0,1,0,1,0,0,0,1,1,1,0,1,0,1,0,1]
 - Expected result: '\ufffdB' **
 - Actual test result: TRUE

** In the event of the decoder receiving an invalid input from the motion sensor, a unicode character '\ufffdB' will be printed out on the client side to indicate an invalid pattern matching.

Signal Stream Verification

Rationale:

Given a set of HIGH and LOW signals sent from the motion sensor, the decoder has to classify a sequence of HIGH signals as either SHORT or LONG motion. This test is conducted to check if the decoder can determine the sequence correctly.

Setup:

1. Import assert library.
2. Import the source of decoder.
3. Create a decoder object.
4. Initialise an array with '0' and '1' to simulate LOW and HIGH signals respectively.
5. The number of '0's must be either one or two in between two sequences of '1's to simulate a signal gap which is defined as less than three units long.
6. Create another array which is composed by 'S' and 'L' to simulate SHORT and LONG motion sequence.

Procedure:

Both arrays created will be fed into an assertion function together. If the output is TRUE, that means the decoder correctly identifies the sequence of '1' as either SHORT or LONG in between a signal gap. False otherwise.

- Valid Input
 - Input: [1,0,1,1,1,0,0,1,0,1,0]
 - Expected result: ['S', 'L', 'S', 'S'] **
 - Actual test result: TRUE

** Note that the assertion function will return TRUE only when both of the parameters are an array type. In another words, it means that an array of ['S', 'L', 'S', 'S'] is the intermediate state of the interpreted motion sequence.

** This test does not test for invalid input. Due to our implementation of the decoder, it is not possible to generate an invalid output from a stream of detected motion signals.