

Middle East Technical University

Electrical - Electronics Engineering Department

## EE494 - Engineering Design II

## Test Sheet

**Group Name:** λambda

**Date:** 17.05.2022

**Design Coordinator:**

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**Members of Company:**

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1. Demo Plan

* The test procedures given below will be tested one-by-one in the given order. Each test case has measurement(s) that are to be obtained throughout the procedure.
* One team member will hold the master unit to conduct the tests. The tags will be static, i.e. stay in the same place and orientation throughout each test.
* The success measures for each of the measurements are given in the table.
* We would like to note that since we only have two tags and our doorway tag system requires us to use two tags, we cannot demonstrate the case where both a doorway tag system and a zone tag system are present. This will not be the case for the final demo procedure as we aim to switch to a custom PCB-based design.

1. Date & Location

* 18.05.2022, @15.40
* METU, Electrical & Electronics Engineering Department, E-Block, Ground Floor

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Distance Estimation Testing Scenarios** | | | | | | | | | | |
|  | **Test Case** | **Tag-Master Height Difference** | **Tag-Master Facing Direction** | **Measurements & Success Measures** | | | | | | **Success?** |
| **Far State** | | **Medium State** | | **Close State** | |
| **Zone Tag** | **Proximity State** | | | **100-90 cm** | **Max. Expected Error Margin** | **70-60 cm** | **Max. Expected Error Margin** | **40-30 cm** | **Max. Expected Error Margin** |  |
| Walking towards & away | 0 cm (At the same height) | 1Facing towards |  | 10% |  | 10% |  | 10% |  |
| Walking towards & away | 0 cm (At the same height) | 2Facing sideways |  | 20% |  | 20% |  | 20% |  |
| Walking towards & away | 0 cm (At the same height) | 3Facing away |  | 30% |  | 30% |  | 30% |  |
| Walking towards & away | 4Tag is 50 cm higher than master | 1Facing towards |  | 25% |  | 25% |  | 25% |  |

*1Facing towards: Antennas pointing towards each other.*

*2Facing sideways: The master unit is rotated 90 degrees on the plane parallel to the ground surface.*

*3Facing away: The master unit is 180 degrees on the plane parallel to the ground surface.*

*4Tag is 50 cm higher than the master: The direct path is used for the measurements.*

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Miscellaneous Testing Scenarios** | | | | | | | | | | |
|  | **Test Case** | **Tag - Master**  **Height Difference** | **Tag - Master**  **Facing Direction** | **Reaction Speed** | | **How many states were skipped?** | | **Were the appropriate states entered within the expected time?** | | **Success?** |
| **Measurement** | **Max. Reaction Time** | **Measurement** | **Max. Skipped State** | **Measurement** | **Max. Reaction Time** |  |
| **Tag Classification** | During start-up/operation, the tags will be classified as either zone or door tags | 0 cm (At the same height) | 1Facing towards |  | 2s | N/A | N/A | N/A | N/A |  |
| **Zone Tag** | Approaching in a straight trajectory, slowly | 0 cm (At the same height) | 1Facing towards | N/A | N/A |  | 0 |  | 2s |  |
| Approaching in a straight trajectory, fast | 0 cm (At the same height) | 1Facing towards | N/A | N/A |  | 0 |  | 2s |  |
| Approaching in spiral trajectory | 0 cm (At the same height) | Alternating direction | N/A | N/A |  | 1 |  | 2s |  |

N/A: Not Applicable