

HCIPlayer: Benchmark Tasks

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1 Introduction

This document outlines the tasks that we expect a user to be able to perform with the HCIPlayer device as well as defining useful metrics for the usability of the device based on the user's performance in these tasks. We also formulate reasonable performance expectations for these tasks.

2 Usability Goals

Our usability goals are as follows (more detail can be found in the project notebook):

Ease-of-Use (EU)

The ease-of-use measure is based on how easily the user is able to perform commands to which he/she has been introduced. This usability goal is measured in the number of seconds it takes for the user to correctly complete a command.

Effectiveness of Gesture Recognition (GR)

This goal attempts to quantify how well gestures are recognized, and is measured in the number of gestures a user makes before the command is successfully recognized.

Effectiveness of Voice Recognition (VR)

This goal attempts to quantify how well voice commands are recognized, and is measured in the number of times the user says a command before it is successfully recognized.

3 Benchmark Tasks

These tasks are analog to those asked of the user in the evaluation manual.

—BEGIN TUTORIAL—

1. Tap to play start playback.

Goal	Measure	Expected
(EU)	Time taken to complete (in seconds)	8s
(GR)	Number of gestures attempted	1

2. Adjust volume using gestures

Goal	Measure	Expected
(EU)	Time taken to complete (in seconds)	10s
(GR)	Number of gestures attempted	2

3. Pause music using gestures.

Goal	Measure	Expected
(EU)	Time taken to complete (in seconds)	5s
(GR)	Number of gestures attempted	1

4. Play using a voice command.

Goal	Measure	Expected
(EU)	Time taken to complete (in seconds)	10s
(VR)	Number of voice commands attempted	2

5. Skip track by gesture.

Goal	Measure	Expected
(EU)	Time taken to complete (in seconds)	5s
(GR)	Number of gestures attempted	2

6. Go to previous track by gesture

Goal	Measure	Expected
(EU)	Time taken to complete (in seconds)	3s
(GR)	Number of gestures attempted	1

7. Skip song by voice command.

Goal	Measure	Expected
(EU)	Time taken to complete (in seconds)	5s
(VR)	Number of voice commands attempted	1

8. Seek in song by gesture

Goal	Measure	Expected
(EU)	Time taken to complete (in seconds)	10s
(GR)	Number of gestures attempted	3

9. Replay by voice command.

Goal	Measure	Expected
(EU)	Time taken to complete (in seconds)	10s
(VR)	Number of voice commands attempted	1

10. Turn shuffle on by voice command.

Goal	Measure	Expected
(EU)	Time taken to complete (in seconds)	10s
(VR)	Number of voice commands attempted	1

11. Turn shuffle off by voice command.

Goal	Measure	Expected
(EU)	Time taken to complete (in seconds)	8s
(VR)	Number of voice commands attempted	1

12. Turn repeat on by voice command.

Goal	Measure	Expected
(EU)	Time taken to complete (in seconds)	9s
(VR)	Number of voice commands attempted	1

13. Turn repeat off by voice command.

Goal	Measure	Expected
(EU)	Time taken to complete (in seconds)	7s
(VR)	Number of voice commands attempted	1

—- END TUTORIAL —-

14. Play current song

Goal	Measure	Expected
(EU)	Time taken to complete (in seconds)	8s
(GR)	Number of gestures attempted	1
(VR)	Number of voice commands attempted	1

15. Skip to next song by either speech or gesture.

Goal	Measure	Expected
(EU)	Time taken to complete (in seconds)	5s
(GR)	Number of gestures attempted	1
(VR)	Number of voice commands attempted	1

16. Stop playback.

Goal	Measure	Expected
(EU)	Time taken to complete (in seconds)	8s
(GR)	Number of gestures attempted	1
(VR)	Number of voice commands attempted	0