Wristwatch Gesture Device Evaluation

We have created a device that lets people control devices such as cellular phones or mp3 players by making simple hand gestures such as a clockwise hand movement. Instead of carrying a remote control or portable keyboard, users wear a device that fits like a wristband.

We want to find out how well this system works, how long it takes users to "train" the system to recognize their individual gestures, and what the appropriate gestures are for specific MP3 player functions.   We also want to find out whether people like or dislike using the device, and how we can improve it. Fifteen adults will participate in this study. Participants are eligible for this study if they have a wrist circumference of 6-8 inches, can comfortably wear a device that is roughly the size and weight of an adult-sized wristwatch, and have the ability to comfortably make hand gestures such as a clockwise hand movement.

Part 0: Preamble
Say the following to the participant:

"Thank you again for agreeing to help us with this study. We expect this evaluation to take less then two hours. During the interview portion of this study, we would like to audio record for note taking purposes. Is that ok with you?

Let me tell you a bit about what we're going to do today. First, we'll help you put the wristwatch device on your wrist, and explain to you how to operate it. Then, we're going to ask you to use a piece of software that will train the device to recognize gestures you make.

After you're finished using the training software, we will ask you to perform several tasks using the device. When you are finished completing these tasks, we'll then ask you to do a similar set of tasks, except this time we will allow you to choose which gestures you find the most natural to use for each interaction.

Finally, we'll finish up with a 10-15 minute interview to find out more about your experience using the wristwatch device. Everything you tell us during the interview will help us make our device better, so please be sure to tell us about anything - even small things - that seem difficult, uncomfortable, or don't make sense to you. We're really interested in learning about everything that you have to tell us. There are no 'right' or 'wrong' answers! And as always, if you have any questions about how to use the device or about the study, we're happy to answer them, so please don't hesitate to ask anything."

Part 1: User puts on device
Explain to user how to put device on wrist. Help user put the device on the wrist if necessary.

Part 2: Training
Load training software. Have participant complete training software activity in order to teach the gesture device how to recognize the participant's hand movements. Time how long it takes users to complete the training activity.   Note any difficulties the participant has with the training software.

Part 3: Complete a series of tasks using the device and a comparable input method
(1) The evaluator shall have a list of tasks to complete with the wristwatch interface. These tasks will include:

- Starting/stopping a music file
- Raising/lowering the volume
- Advancing to the next/previous song

(2) The evaluator will instruct users to complete each task one-by-one.   The evaluator will time how long it takes the participant to complete each activity, and will record instances in which the system does and does not recognize gestures properly, or when the user provides the system with the incorrect command.

(3) The evaluator will ask the user to think about what gestures he or she feels best map out each function of the MP3 player (such as lowering the volume). With the user's choices, the evaluator will reconfigure the system and repeat step (2) for this new set of gestures.

(4) The evaluator should ask the participant to remove the wristwatch device, and should help the participant remove the device if necessary.

Part 4: Semi-structured interview
The evaluator will then conduct a 10-15 minute semi-structured interview that assesses subjective qualities of the system. The interview will be audio taped with the participant's permission.

The interview should cover the following areas:

- What do people like about the system?
- What could be improved about the system?
- Is the system uncomfortable to wear? Why?
- Is the system socially acceptable, or would users feel "strange" using it in public or at home?
- Are there any other issues with the system?