COGNITIVE WALKTHROUGH

The users of our product want to be able to convert images on the computer to a 3d interface. Our target audience is for the blind, so there should be keyboard shortcuts to help make navigation easier. To use the software interface, you open an image file and export it to the 3d interface. You can both export it directly and make a relief map, or you can use line detection to make it easier to make out the point of the image. The users want a simple interface since it is not software intensive.

To indicate that something is happening, I think the pins should make a noise as they move into place. This will indicate to the blind that the program is working, as well as emphasize the location of the product. If an error is made, a "ding" sound should be heard to indicate that nothing happened.

Mock Interface:
HEURISTIC EVALUATION

1. Validity of system status
   The main audience of the project was the group of visual impaired; thus, we’ll use audio instructions to help users start, perform, and terminate the task. Thus, users can get feedback from the audio instructions about which button they press or how to continue the task. Also, once users followed the instructions, and start using their hands to sense the picture, the tactile feedback would keep users in the loop.

2. Match between system and the real world
   Our system would include the audio instructions which play during each step of the task and after pressing each button to control the task. The language we use will be simple and straightforward.

3. User control and freedom
   The task itself is quite straightforward: (a) Start the task, (b) Put their hand on the touchpad, (c) Sense the pictorial stimuli, (d) Go to next item OR (e) Exit
   Thus, users can use the buttons to control if they want to continue the task. Also, there is no time limit on each step; users can take their pace on the tasks.

4. Consistency and standards
   We’ll use the same motor protocols during the whole tasks. Users will be given the consistent audio instructional aids and buttons to complete the task.

5. Help users recognize, diagnose, and recover from errors
   Because the task only contained 4 steps, and users can self-manage the time spent on each step. The only possible error is to confuse the button of “Go to next item” and “Exit”. After they press the button, the audio instructions would play; then users will recognize their error immediately. The solution will be to restart the task again such as to press “Start” button, or to terminate the task such as to press “Exit” button. So, users can easily recognize, diagnose and recover from the errors in our system.

6. Error prevention
   Errors could happen on the hardware and software side. On the hardware side we are concerned about the pins getting stuck and the sensitivity of a reset. On the software side, users could choose the wrong image to view. We also will need to be careful to follow the standard convention of shortcuts for software for the visually disabled.

7. Recognition rather than recall
   As our target is for the blind, recognition is going to occur at the tactile level and be consistent with standards for other assistive systems. As much is going to rely on recall, we need to insure that our audio clues are distinctive enough for users to differentiate between them.

8. Flexibility and efficiency of use
   It will be important to include a novice mode and an expert mode as instructions are given by audio, the more expert users will become frustrated with detailed instruction.
9. Aesthetic and minimalist design?
   This is a somewhat complex issue as our current design is to have a GUI interface but is that how the visually impaired interact with computers the most. Should we perhaps have a command mode? Is the device going to be used as something that a person brings with them to interface on any machine or will it be stationary? These are some questions that will need further research.

10. Help and documentation
    Documentation will be done through audio files and documents that are screen reader compatible. Difficulty arises in search and discovery. The files are going to need to be full text searchable.