Howdy! The application you have in front of you is called Situated Touch Audio Annotator and Reader. It has been designed to allow you to read what you touch at your own pace. It runs on an iPad. We have augmented the iPad screen with a tactile overlay that has been printed using a Braille printer on a plastic sheet. The overlay provides guidance to three main areas. The left margin, the text area, and two haptic buttons on the bottom left and right sides of the page. The left margin is separated from the reading area by a vertical line. In this area, you can move your finger up or down slowly and you can hear the system say the number of the line you are at. Once you have found the line you can start reading by following the line location horizontally on the screen. The horizontal tactile patterns in the text area serve to help you move your finger in a straight line along the page. Note that the lines on the overlay do not correspond directly to the lines on page. Every document can have different size and density of text but you can find the line with help of the audio feedbacks that you will receive as you move your finger along the page lines. If you move your finger faster, the system will read faster and if you are moving so fast that the system cannot catch up, it will skip one or more words. You will be notified of the skipped word or words with one short click sound per word. If you have reached the end of line, you will hear a short ding sound, and if you are touching white blank area on the page, you will hear a paper touching sound. If you are moving forward on a line, but straying slightly up or down as you go, the system will notify you with a white noise sound. If you move your finger back to the line you are reading, the noise will stop. But if you want to change the line you are reading, you can move your finger further away and the system will know that you want to change lines and it will stop the white noise. Finally, to go to the next page or previous page you can use the buttons in the bottom of the page. The first time you press the button, the system will say the button label, for example next page. If you press the button a second time, the page will change and the system will announce the new page number. For simplicity, this introduction has been written with minimal spatial formatting of text.

If you are interested in reading more and experimenting with the system capabilities, you can find a short story on next page. The story has been written with regular page layout, so you can expect a title and multiple paragraphs.

Furthermore, you can read a short description of the user study we have planned on page four. We encourage people of all genders, ethnicities, and familiarity levels with touch devices to participate. Please be aware that we are only testing the technology, not the participants! We need individuals who are motivated to make better technologies so everyone can enjoy reading!

The Princess and the Pea: A Short Story

Once upon a time there was a prince who wanted to marry a princess. but she would have to be a real princess. He travelled all over the world to find one, but nowhere could he get what he wanted. There were princesses enough, but it was difficult to find out whether they were real ones. There was always something about them that was not as it should be. So, he came home again and was sad, for he would have liked very much to have a real princess.

One evening a terrible storm came on. there was thunder and lightning, and the rain poured down in torrents. Suddenly a knocking was heard at the city gate, and the old king went to open it.

It was a princess standing out there in front of the gate. But, good gracious! what a sight the rain and the wind had made her look. The water ran down from her hair and clothes. It ran down into the toes of her shoes and out again at the heels. And yet she said that she was a real princess.

Well, we will soon find that out thought the old queen. But she said nothing, went into the bedroom, took all the bedding off the bedstead, and laid a pea on the bottom. then she took twenty mattresses and laid them on the pea, and then twenty beds on top of the mattresses.

On this the princess had to lie all night. In the morning, she was asked how she had slept.

Oh, very badly! said she. I have scarcely closed my eyes all night. Heaven only knows what was in the bed, but I was lying on something hard, so that I am black and blue all over my body. It is horrible!

Now they knew that she was a real princess because she had felt the pea right through the twenty mattresses and the twenty beds.

Nobody but a real princess could be as sensitive as that.

So, the prince took her for his wife, for now he knew that he had a real princess. and the pea was put in the museum, where it may still be seen, if no one has stolen it.

There, that is a true story.

User Study Description:

In this research study, we will evaluate learning outcomes and interface designs for active reading using an iPad system for individuals with blindness or severe visual impairments. The experiment will consist of participants using and evaluating our system. We hope to learn which interface techniques provide the most benefit and why.

The participants will be given a background questionnaire to assess previous experience with various reading and note taking tools. Next, they will be asked to complete a set of tasks using our iPad reader application. These tasks mainly consist of reading a simple short passage and answering a few questions from it. A questionnaire will be given asking specifics about our system and a short interview will be performed in the end for comparisons, any additional insights and comments. The entire study will take approximately two hours. If at any time they need a break, the study will be paused so they can take a break as needed. We have also scheduled a break halfway through the study. We will provide refreshments during the session and breaks.

With their permission, we would like to videotape the study sessions for future analysis. If they consent, video excerpts may be used in the future for scholarly or academic presentation purposes. No private information of the participant such as the name or face will be revealed in such presentations. All results are kept confidential. Results that reveal individual information will be seen only by members of the research team.

We encourage people of all genders, ethnicities, and familiarity levels with touch devices to participate. Please be aware that we are only testing the technology, not the participants! We need individuals who are motivated to make better technologies so everyone can enjoy reading! since we will have the study sessions in our lab on campus, we will arrange for parking spaces near the building for convenience,

you will be compensated the two way taxi fare. Also, the participants will receive a ten dollar compensation for their time per session.

This research has been reviewed and approved by the Institutional Review Board.