Stylus to text

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Goals

Create pen input to text software that utilizes the pen strokes during the writing process rather than analyzing the final characters. The goal is to make this software faster and more accurate than the later type of written to text software.

Our goal is to have this software working with the 26 lowercase letters and standard digits.

If we can complete this first step (Which we would like to do the first semester and will adjust our plan accordingly) we would like to attempt to add features such as these:

- Handwriting touch-ups
  - Using the letter predictions make a users input more legible by adjusting pen strokes to match a predefined ideal letter.
  - Essentially cleaning up the users handwriting
- Make the white noise removal functions powerful enough to remove the extra lines caused by those with hand tremors.

Motivation

When trying to take notes with a stylus and touch screen we noticed that direct pen to art note taking, the difference in accuracy from real pen in paper made the handwriting illegible, and the built in pen to text software was too slow and inaccurate. The idea came about thinking of different ways to handle the pen input to work as quickly and accurately as needed to take notes in a classroom.

When the strategy of working with the pen strokes was realized and its potential for removing the white noise of bad handwriting was noticed. we realized that with some focus on that area the software could potentially help those with parkinson's and other conditions that cause hand tremors.
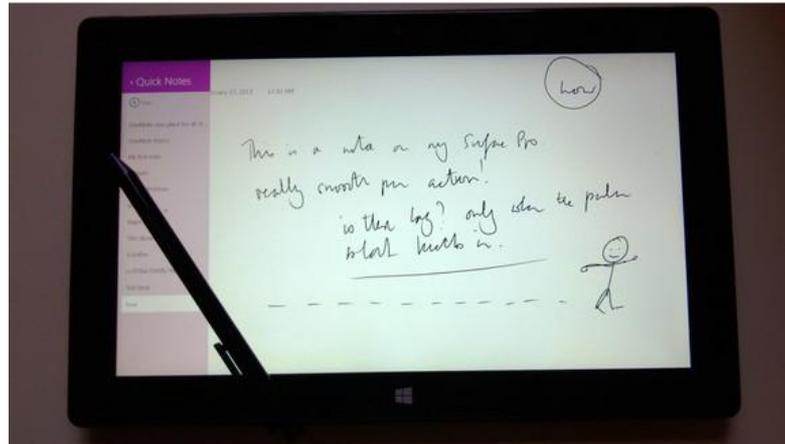
Technical Challenges

- Taking in pen (or potentially mouse) input from the user without adding additional inaccuracies.
- Simplifying the pen input into more workable portions such as a series of curves or dots.
- Using this broken down pen input to identify what letter is being written.
- Try to narrow the prediction down before the letter is completed.

Milestone 1

- Writing a software that reads the input as dots and gives back the direction of the persons strokes.
- Install and run this software on one of our local machines. (Demo)
- Brainstorm and test different ways we will divide the input into workable pieces based on the software we choose.(Demo)
- Requirement Document
- Test Plan
- Design Document

Task	Dominique	Kasey
Requirement Document	75%	25%
Test Plan	100%	0%
Design Document	0%	100%
Brainstorm & Test	50%	50%
Write pen input code	25%	75%

Milestone 2

- Determine the best way to divide our input into workable pieces.
- Begin using this division to attempt to predict text.
- Have 0-9 functioning. (Demo)

Task	Dominique	Kasey
Determine best breakdown method	50%	50%
Begin to implement the way chosen for digits 0-9	50%	50%

Milestone 3

- Continue implementing the solution, assuming we haven't already already finished in Milestone 2
- Have it fully functional and running (Demo all 26 letters and digits)

Task	Dominique	Kasey
Finish implementing for lowercase letters A-B	50%	50%