To Predict ▶ To Design ▶ To Perform

College of Engineering
Department of Mechanical & Industrial Engineering

ME, ECE, BE Capstone Design Programs

#6: The Neaux Han Gogh

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Background

The Neaux Han Gogh project began when Julian, a 21 year old quadriplegic with cerebral palsy, expressed his desire "to paint on a canvas".

Goals and Objectives

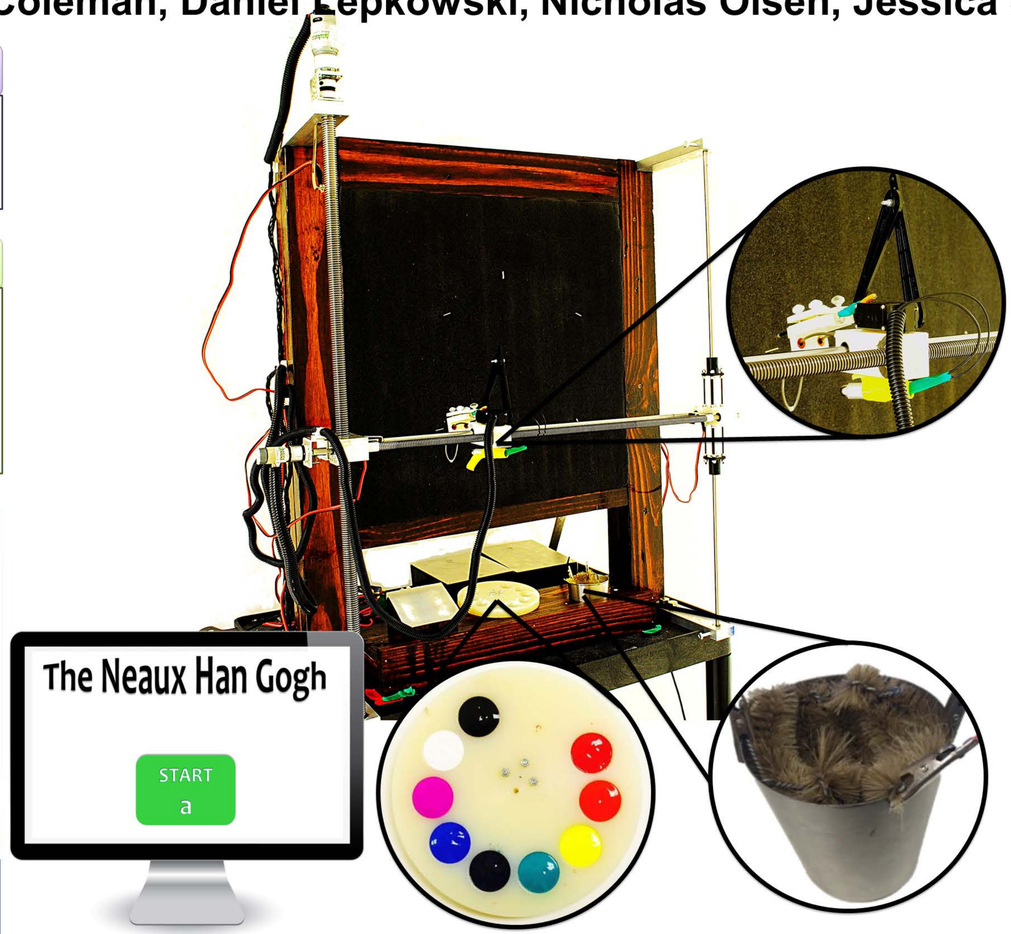
- Minimal physical requirement to apply paint to canvas
- Minimal assistance required during use
- Easy to use software interface
- Standardized power source
- Safe operation

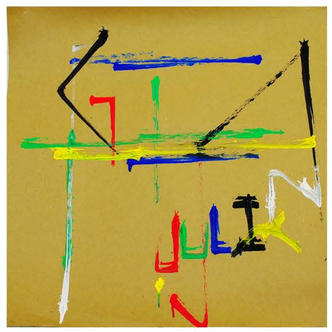
Modes of Operation

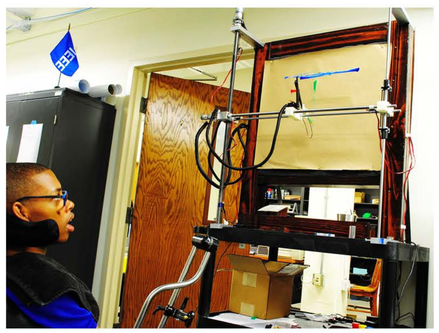
1. Julian uses his eye tracking system to select and set all brush stroke and color parameters in the Neaux Han Gogh Painting Program.
2. He can then depress a head switch to control the brush stroke length and the Neaux Han Gogh Painting Apparatus will autonomously perform the tasks.

Specifications

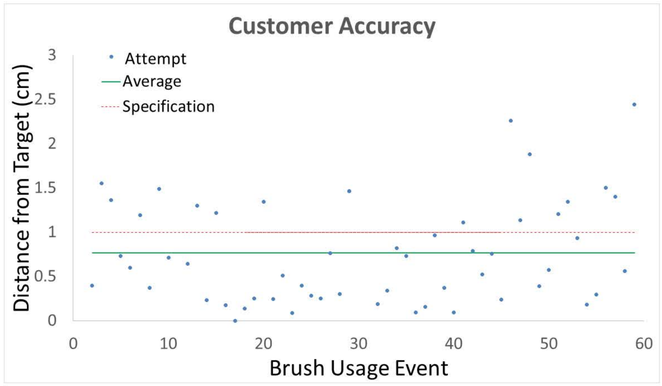
- Paintbrush has 3 degrees of freedom
- Brush stroke lengths are precise to 1cm
- Brush location is accurate to 1cm
- Paintbrush operates at a average velocity of 1 cm/s
- The apparatus has 9 available colors
- The paint removal system removes 90% of unused paint
- The weight of each subassembly does not exceed 50lb
- Canvas is 1.15m from the ground





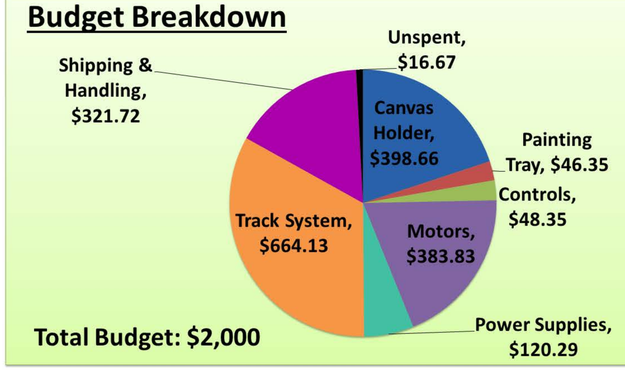


Testing Results



Julian consistently achieves better than 1cm of accuracy using the Neaux Han Gogh.

Budget Breakdown



Conclusion

Using the Neaux Han Gogh, Julian has already produced a handful of artworks during his testing sessions. After only one week of use, his designs have become less abstract and more coherent. We succeeded in the production of the Neaux Han Gogh when Julian, an avid Miami Dolphins fan, was able to paint his first dolphin!

Concept Generation, Evaluation and Selection 9/27—10/2
Analysis of Concept 9/30—2/5
IRB Approval 10/26
Procurement 2/5—3/18
Manufacturing Assembly 2/18—4/8
System Testing 3/7—4/26
Prototype Review 4/29

September | October | November | December | January | February | March | April

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Faculty Adviser: Dr. Michael Murphy