

# The Robot Piano

## Team Members

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“To invent, you need a good imagination and a pile of junk.”  
— [Thomas A. Edison](#)

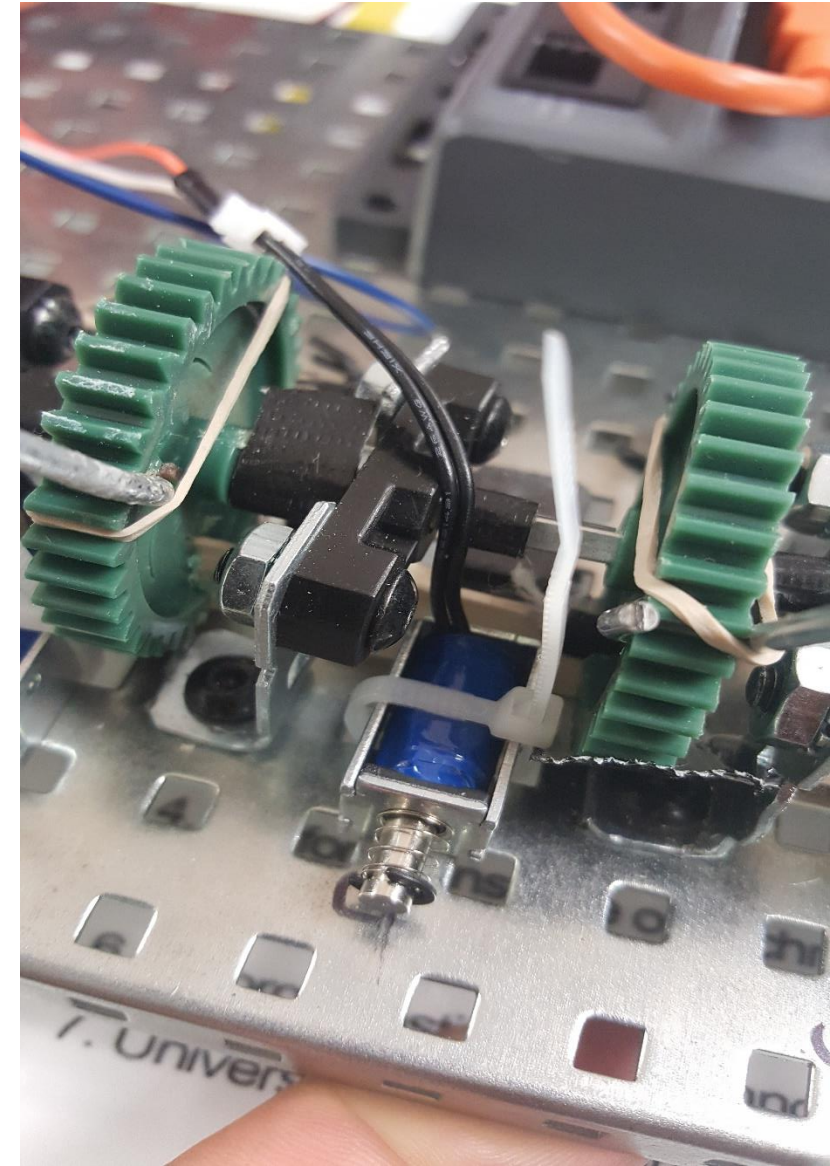
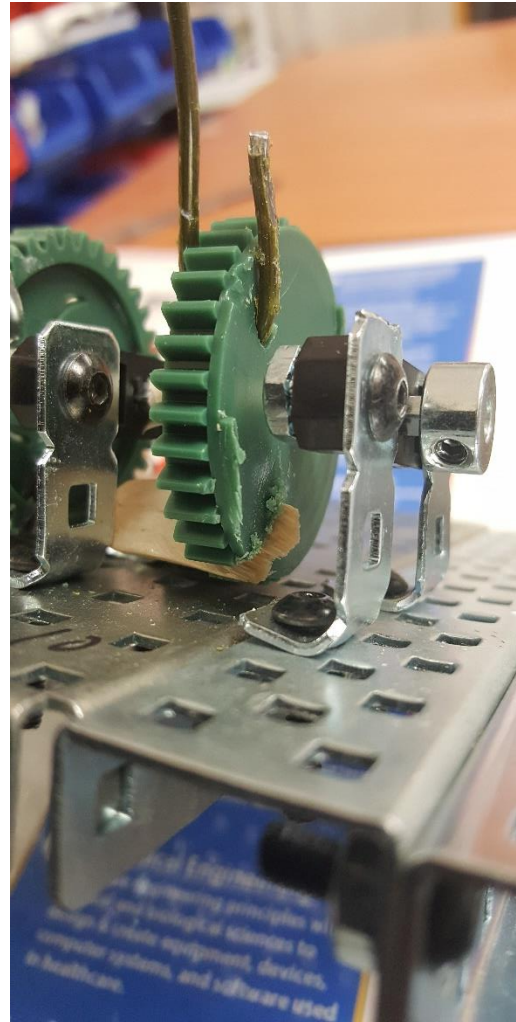
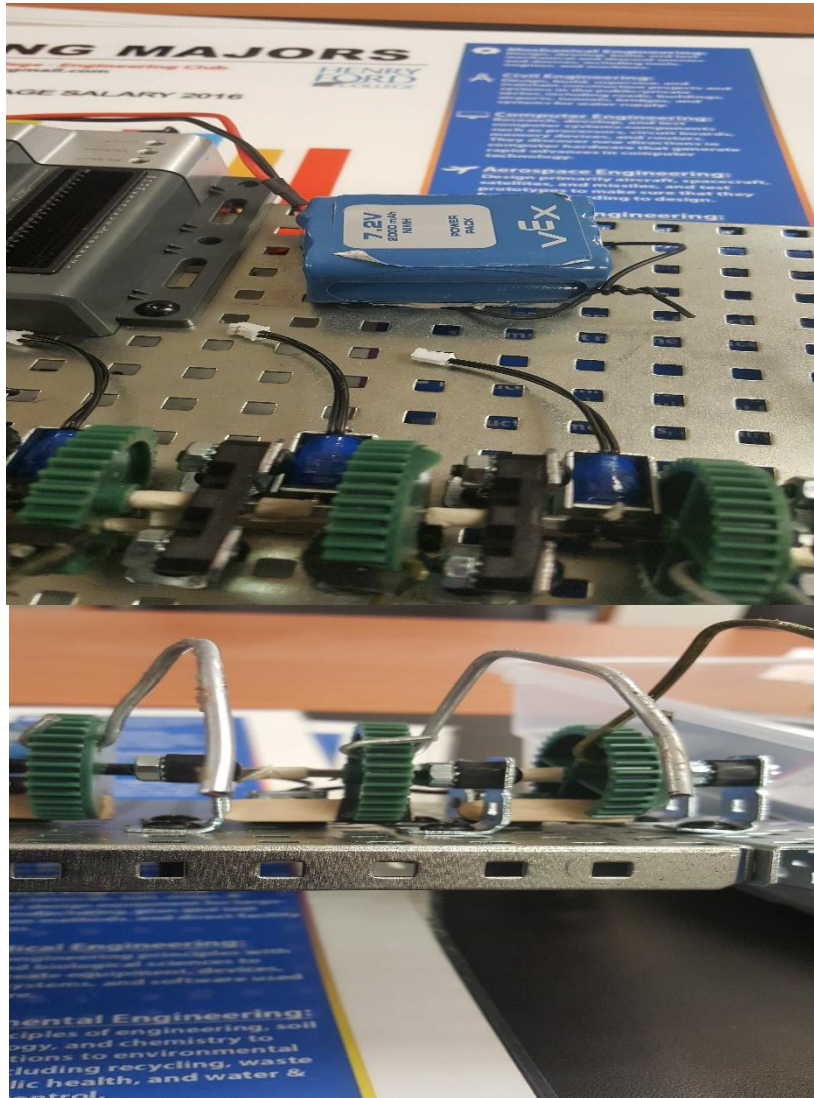
# Problem Justification

- Art and Engineering are one of the same. Engineering just like art will help inspire creativity and innovation.
- The trending piano playing videos on the internet showing a growing audience to that forgotten art.
- The team saw an opportunity to make a machine that will play and teach piano.
- It seemed to be the one that caught the eye of all team members so we decided we wanted to give it a shot.
- Looked fun because we get to play our favorite songs.

# Material Used

- Aluminum Platform, brackets
- screws
- wires
- solenoids
- Foam
- Wooden Sticks
- Circuit board

# Pictures Of Project



# What is the reason behind making the Invention.

- Seeing the trending popularity of the piano music on the net encouraged the team to show tackle this opportunity and discover our artistic side.
- We envisioned if this product developed to see it in coffee shops restaurants playing a real piano on demand.

# What solution does this bring

- Professional piano players are not available everywhere, and if they were they will charge a lot per hour to play in a restaurant or a coffee shop.
- We saw this product as a solution to those business places that want to make this type of entertainment available and affordable.
- Even households can make this machine available to enjoy piano sounds or teach upcoming artists popular songs

# Other solutions?

- There are many solutions that can tackle this problem such as radio, I Tunes or electric boards. Our approach wanted to bring back the classical sound of a piano and make it cool affordable and innovative.



# Describe how the invention works

- You choose a song from a large library full of songs, or songs you choose to program and it plays the song right away.
- The robot fingers will play any song you give it through a simple melody code.
- The circuit controls each of the solenoids at a different time based on the tone required. The solenoid will then push on the bracket on the base causing the finger to tilt forward and strike the key of piano.
- Then the tension on the back of the finger will bring it back to home position when solenoids are off.

# How did we make it

- We took the time as a team and split the team even further into small groups of 2 or 3 so we can split the work.
- Zeyad Mohamed, Mohamed Munaser, and Mohamed Sabri are in charge of the coding and the controller of the Robot Piano.
- Eba and Mohamed Mawri are in charge of the actual piano and the wiring of the robot.

# How much did it take?

- Money?- About \$150
- Time?- About 2 month

# What tools and Programs did we use

- We used metal from the lab and plastic wheels and wiring.
- The circuit board was provided by the college
- The solenoids were purchased on line.
- Each finger had its own shaft and turning when.
- Each finger had a solenoid that was individually wired to the board.
- What program did we use for coding?

Arduino. Explain

# What can we do to help improve the score that this Piano got?

- We can improve the look of the Piano instead of taking it as a prototype.
- We can add a size adjuster for the robot fingers so it can play on all sizes of pianos.
- We can increase the amount of music it can play.