Projects List – Shane Kelly

9/15/14 to 11/8/14 - I Phone Case Creation

- Sketched an I Phone case found online
- CADed five iterations from scratch
- 3D printed each iteration

10/20/14 to 11/10/14 - Ibuprofen Model

- Modeled Ibuprofen through the body in MATLAB
- Found ideal 400mg Ibuprofen intake frequency (varies on height)
- Created a poster-based presentation to show findings

11/1/14 to 11/10/14 - **Entered a White House / Instructables / Smithsonian Ornament Design Challenge**

- CADed the White House with Santa's sleigh on top
- 3D printed multiple iterations of my design
- Won a first place prize (top 20 out of 325)
- In final results, got runner-up (top 15 out of 325)

11/1/14 to 1/1/15 - Grand Scholar's Proposal: Ordnance Sweeping with Drones

- Thoroughly researched the problem of landmines throughout the world
- Researched drone capabilities (specifically quadcopters)
- Wrote a proposal to solve this problem

11/20/14 to 12/16/14 - Ping Pong Ball Simulation

- Used MATLAB to model a ping pong ball's trajectory through the air
- Varied initial x velocity, initial y velocity, and initial angular velocity
- Tracked many different characteristics of the ball to discern spin's effect on the ball's flight

11/20/14 to 12/17/14 – Bear Game Design

- Designed and built a bear-inspired game for 4th graders
- Fish were launched from a mounted slingshot and caught in the mouth of a 6' tall wooden bear
- Final prototype was tested by 4th graders

11/20/14 to 12/18/14 – Turbidity Sensor

- Designed and built a circuit that measured water clarity
- Added a fun twist with calibration to different types of milk
- Could discern between different fat contents in milk and tell if you were actually drinking what milk you thought you were drinking

12/18/14 to 12/19/14 – 3D Printed Vase

- Designed and printed a vase as a gift
- Multiple iterations were designed and printed
- Final design took 9 hours to print

1/1/15 to 2/1/15 – Responsive LED Strip

- Set up LED strips all around my room
- Hooked them up to an Arduino so that they only turn on when it is dark in my room
- Potentiometer allows for blinking frequency control

1/20/15 to 2/3/15 – Gene Finder

- Python script that takes DNA series (ATCGACC…) and returns the amino acids within it
- Bioinformatics

1/30/15 to Present – Robot/Human Interaction Research

- Worked with a humanoid robot, Jimmy
- Used OpenCV: face detection, color detection
- ROS, python, C

2/2/15 to 2/28/15 – MegaBots Design Challenge

- Design the left arm to a 15' tall arena combat robot
- Main weapon system is paintball-based (3"-8" paintballs)
- Designed a double-revolver type weapon

2/3/15 to 2/10/15 – Computational Art

- Artwork generated with recursive python functions
- Could input how deep I wanted my functions to be
- Returned an image (pretty cool images)

2/12/15 to 2/19/15 – Translatasaurus

- Python code that parses text and turns it into a synonym text
- Replaces each word in the text with a random synonym of itself from an online thesaurus

2/13/15 to 2/15/15 – 3D Printed Key

- I measured the key to my dorm room (7 pin tumbler lock)
- CADed the key from scratch
- 3D printed it, iterated, and got it to unlock my door

2/15/15 to Present – Mobius Gear

- Working on designing and 3D printing a functioning Mobius gear strip
- Held in place by planetary helical gears as the strip spins