#GetREAL

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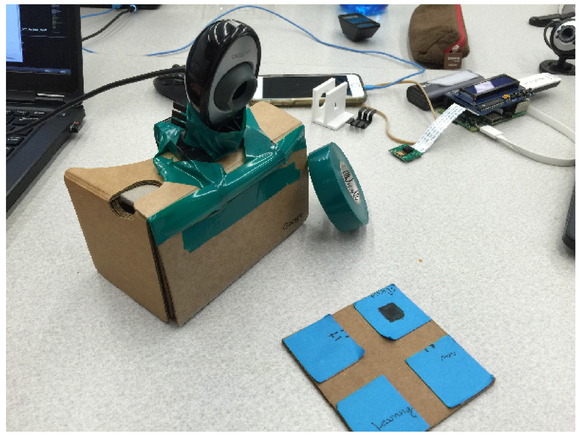
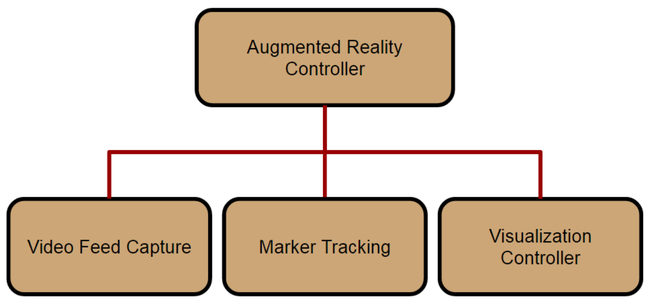
What is #GetREAL?



Using the power of augmented reality, you can load up an stl file, put on some Virtual Reality Goggles, and see what your CAD would look like in 3D space, all before you even had to touch a single piece of material!

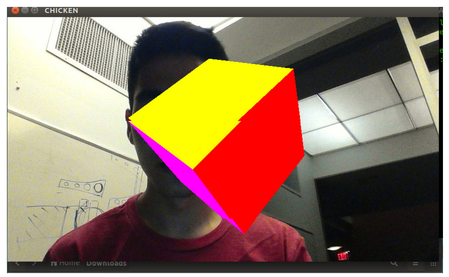
The Mechanics Behind #GetREAL

Code Architecture



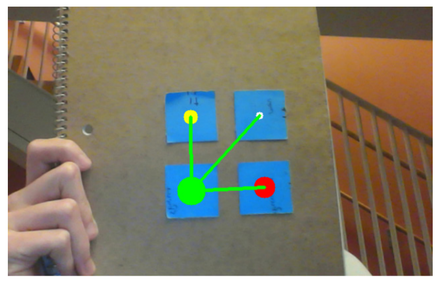
#GetReal is written all in Python and utilizes a Class based code structure. The mechanisms behind #GetReal consist of three main parts: Video Feed Capturing and Preprocessing, Marker Detection, and then the actual Graphics Rendering that occurs in the Visualization Controller.

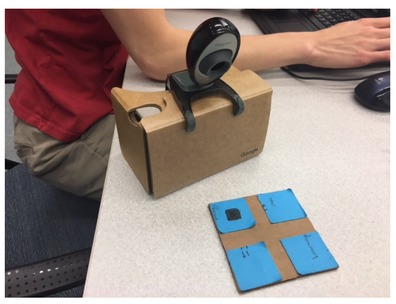
Our Secret Sauce



Visualization Controller - The Graphics Renderer that processed the incoming stl file and renders it in 3D space using OpenGL

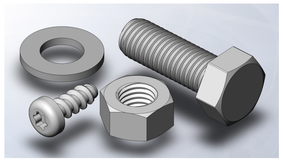
Marker Detection - Using OpenCV to determine the four 3D projected points that would form a cube, thus creating a space in 2D that provides location and orientation for the graphical rendering.





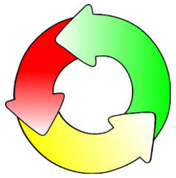
VR Experience - Using Google Cardboard paired with an external webcam, the user can view a stl file in a more immersive Augmented Reality

Code Features



Change the CAD model you are viewing while in the program!

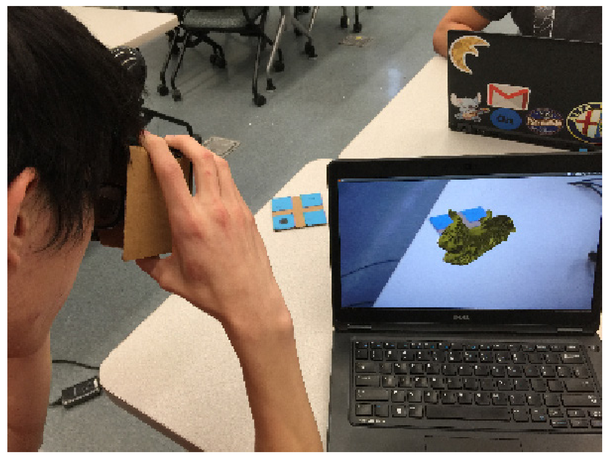
Change the color of the CAD model in the screen!



Function to rotate CAD model in the screen to see it in any orientation!

Function to scale the CAD model in the screen to see it in greater detail!

Where #GetREAL can be Used



#GetReal allows for rapid prototyping and efficient iterations, streamlining the process of development for aspiring mechanical and electrical engineers!!