TAKE THE CUE

How it works …

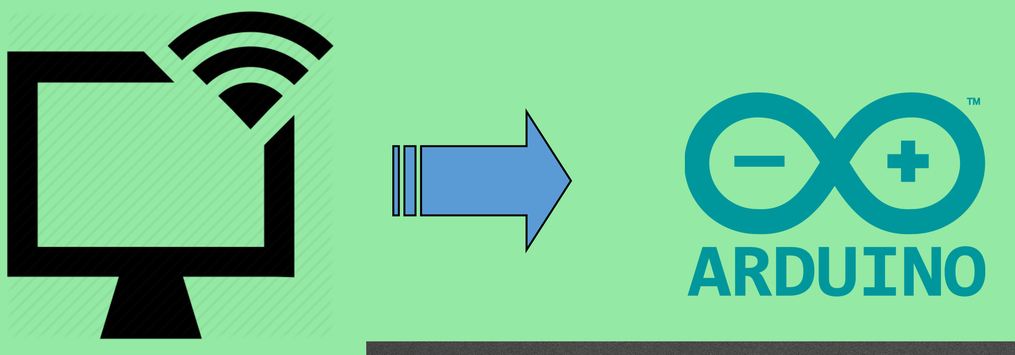
Step 1: **Computer instructs phone to take picture of table**. This is done through serial communication and a custom built, autonomous image capture algorithm.

Step 2: **Image is sent back to computer where it is analyzed**. The computer receives the image and immediately looks to detect where the balls are placed

Step 3: **Calculate best shot**. By knowing the position of the balls, the computer runs thousands of physical calculations to determine which shot will yield the best result for the easiest effort

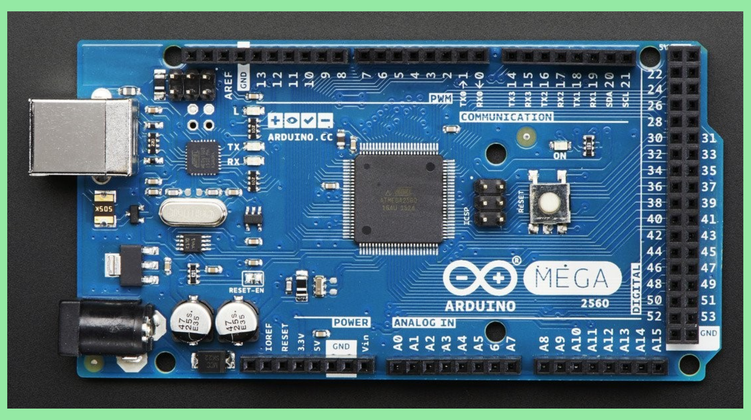
Fun Fact: The physics simulation that is used to find the best shot was custom-made by our software team and optimized for our robot's functionality!

Step 4: **Send shot info to Arduino microcontroller**. The computer sends the x and y position coordinates and orientation to Arduino. The Arduino does the rest!



Fun Fact: Movement is achieved by synchronizing <u>FOUR</u> stepper motors at once!

Linear accuracy:	± 0.5 mm
Rotational accuracy:	± 0.45 degrees



Step 5: **Move and Shoot**. The controller moves the system to desired position and orientation then it triggers the piston to power the shooting mechanism.

Dimensions (l x w x h)	Weight	Striking Speed	Simulation Time