### 4.1.3. Shooting Subsystem Test and Results

We created a shooting mechanism that can hit the ball up to 150cm, which is the full length of the field. Our shooting mechanism is a system with a solenoid trigger. Therefore, we have experimented at 12V, 14V, 16V and 20V to obtain the desired power to hit the ball. Since we reached the desired result at 20V, we didn't need to experiment higher voltages. Desired result is 150 cm, the distance between two farthest points of the playfield.

7. Discussions

1. Any safety issues associated with your design and precautions you have taken to avoid any safety problems.

We know that many robot accidents do not occur under normal operating conditions but rather during programming, adjustment, testing, cleaning, inspection, and repair periods. During many of these operations, the operator, programmer or corrective maintenance worker may temporarily be within the robot work envelope while power is available to moveable elements of the robot system. Hence, we had to be careful to avoid receiving electric shock.

1. A possible widespread application of your product (and/or sub parts, algorithms etc.) and impacts on society.

Our product has 3 important sub-modules. The method used in the shooting system can be used in applications where many kinds of triggers are involved. Image transfer and command transfer modules can also be used in any application in which wireless communication exists. Generally, the product can be sold in the market as a fun product for the entertainment industry.

1. Any potential environmental effects of your product, especially when in widespread use.

Li-Po batteries are the main cause of the environmental impacts of our product. Li-ion batteries are criticized because of the potential safety concerns that they pose. In some cases, batteries would release hot gases, which were enough to cause burns.