# Rover Coil Gun


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## OVERVIEW

We built a project that consists of a controllable rover with a mini coil gun attached to the top. The coil gun can increase or decrease its fire angle and rotate to change the direction of fire

The components mounted on the rover can all be controlled via an Android phone application.

## BACKGROUND

Wouldn't it be fun to shoot a mini projectile from a coil gun? We thought so! That's why we created a mini coil and attached it to a rover.

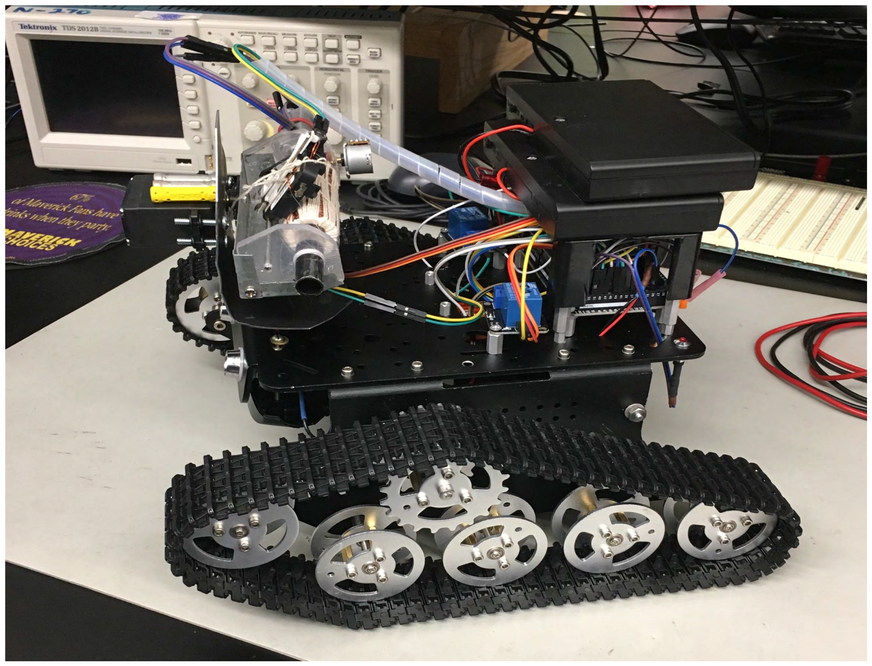
Four capacitors together in series taken from four disposable cameras makes up the flash circuit and holds the charge for the coil. A servo motor controls the angle and a worm gear attached to a turn table controls the direction.

The phone application provides the user with controls for each component so they can operate the rover and coil gun functions.

Geomag Projectile

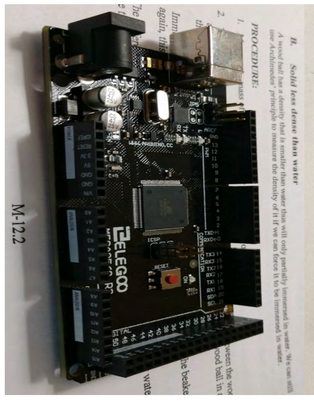

Power source, two 8AA battery packs

## FINAL PRODUCT



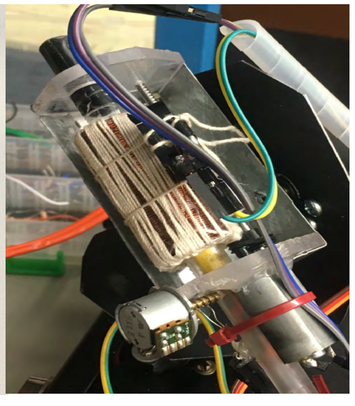
Shown above is two pictures of the finished product. The left hand side picture shows all the components mounted onto the rover while the right hand side shows the coil gun.

## MAIN COMPOENETS



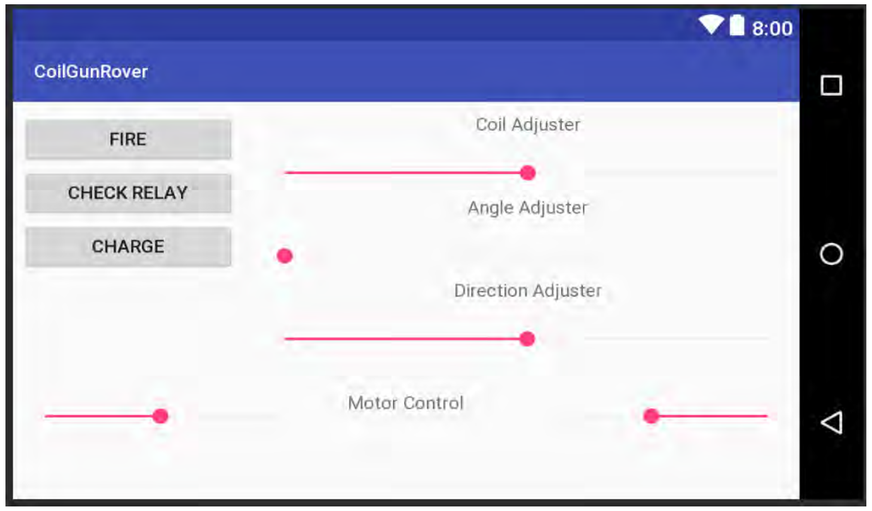
Arduino Mega

Raspberry pi 3



Coil

## ANDROID APP




Shown above is the app layout design for the Rover Coil Gun. The app was designed using Android Studio while the code for the app is written using java. The app gives the user the ability to move the rover via its motor controls and configure angle , direction, or coil position with three more sliders. The user can also charge the coil, check the relay, and fire a projection using the three upper left buttons.

## FUTURE CONSIDERATIONS

- Instead of using a timer as the charge duration, the user could receive back the charge percentage of the coil.
- A more reliable and long last power source could be found instead of using two battery packs of 8AA batteries.
- Code could be added to the raspberry pi program and Android application for better closing of the Bluetooth connection.

## CONTACT INFORMATION

Any questions or comments can be directed at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