

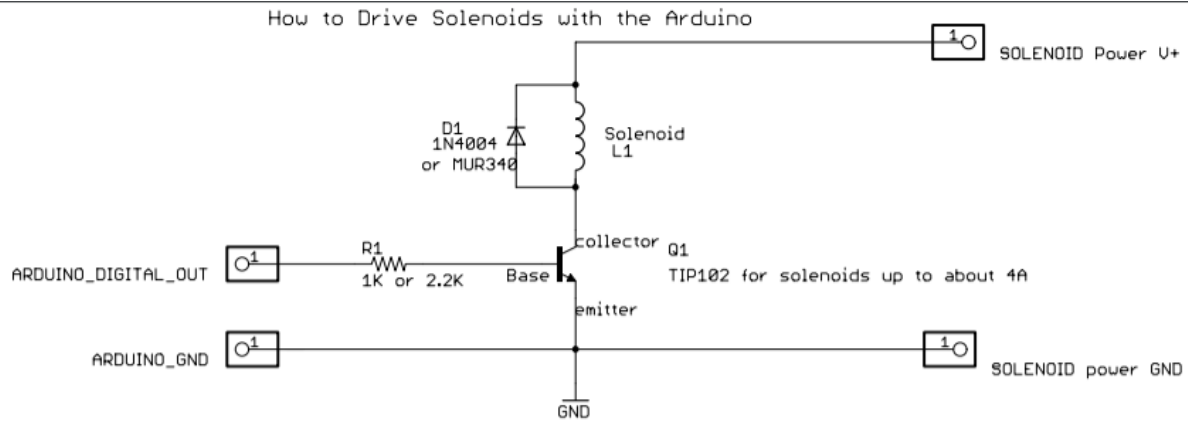
## SEMESTER BREAK REPORT

In the first semester ,we had completed most of the parts of the project except the shooting mechanism. My main focus at the semester break was on the shooting systems. We had proposed three different methods for shooting mechanism: solenoid, spring and pneumatic.

I prefer using solenoid system since it will provide powerful shooting and it is easy to control and operate.



We can operate the system with the voltage control. We can use digital output of the arduino for 12V pushing and for 0V pulling. We can use very simple circuit for drive the solenoid through arduino.



**Notes:**

- you will most likely need a heat sink on the transistor.
- This diagram is for DC solenoids rated up to about 24W: i.e. 12V@2A, 6V@4A, 24V@1A etc.
- The protection diode should preferably be a schottky type, which has better response times. Something like a MUR340 is good for loads up to 3A.

Above circuit can be used for this purpose. We may encounter heating problem and thus, we can use heat sink.

We can establish a much more complex shooting system consisting of three solenoids.

The cost of the push and pull solenoids are just 5 dollars.