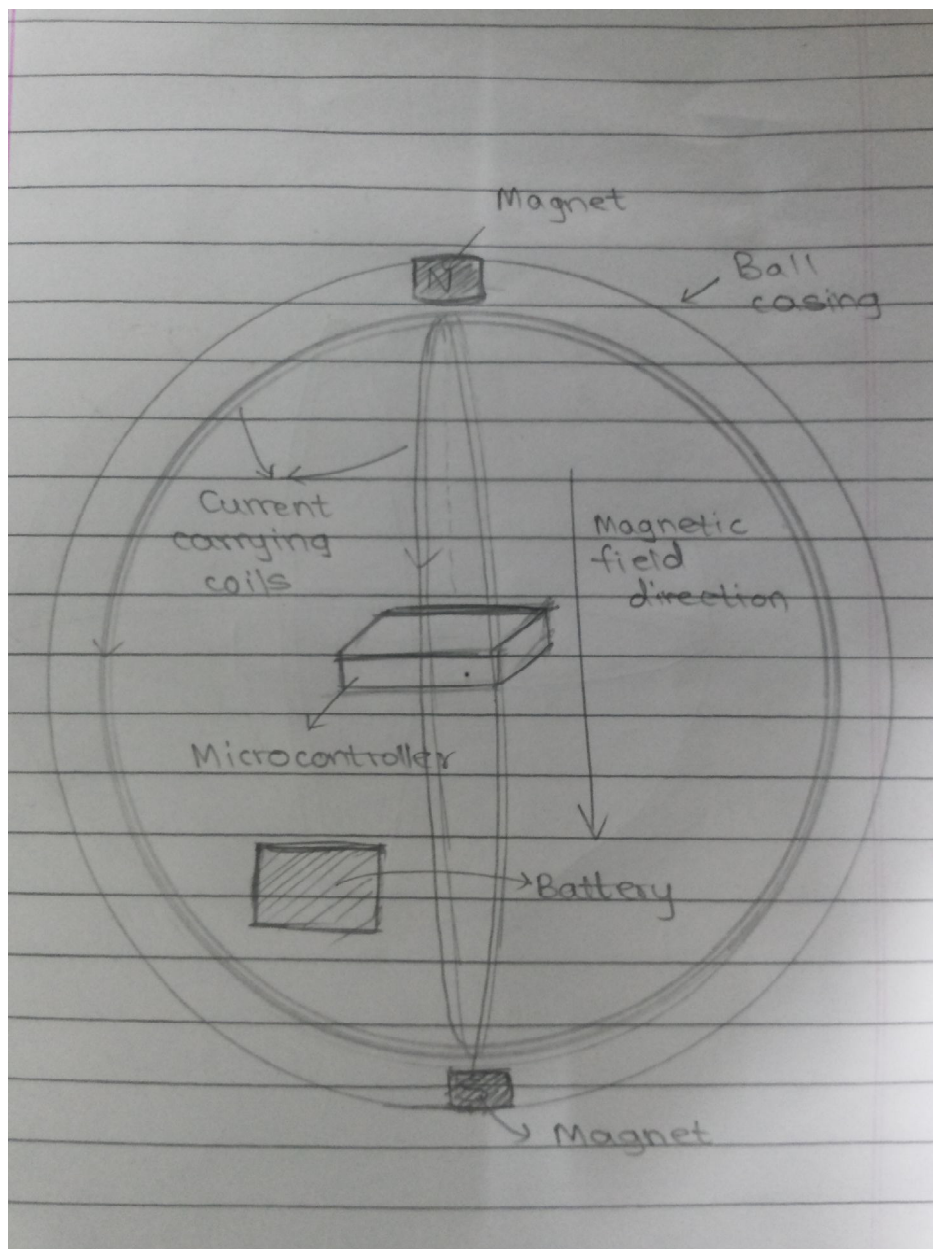


ROBOT – BALL

As the title suggests we are attempting to create a remote controlled spherical mobile ball . The movement of the ball centres around the concept of conservation of angular momentum . The torque required will be produced by placing current carrying loops in a magnetic field .

Within the ball , two concentric current carrying circular loops in two perpendicular planes will be placed in a constant magnetic field generated by two magnets . As a result the torque acting on them will cause them to rotate . Due to conservation of angular momentum the ball will rotate in the opposite direction .



First steps will include setting up the entire magnetic apparatus (magnets , coil , current source etc) within the ball and ensure that by changing current directions manually the ball rotates in the required directions .

Next we will use a micro-controller to control these circuits and change the current directions as and when required . To this micro-controller will be attached a Bluetooth chip which ensures that we can use a mobile phone to control this ball .

COMPONENTS

1. Basic Hardware – Coils, Clamp , ball bearings , wires , batteries , plastic casing of ball etc (Rs 2000)
2. Micro – Controller (Rs 1500)
3. If the bot works to perfection we are thinking of adding a micro camera inside if it is feasible

We hope to learn the following skills during the duration of this project

- Understanding the working and principle of a micro- controller
- Learn to work with a bluetooth device
- Understanding and application of the basic principles of electromagnetism and rotational mechanics
- Working with motors, speed control and its dynamics
- Translating ideal situations to real life applications