Project Presentation

Oliver Reccomend

* 50% proposal, 50% final report
* Science background (justify ect)
* Experimental setup
* Prelim results

Title page - C

* Introduce
  + Names
  + Good model (teaching aid) - justify
* Presentation contents

Aims - E

Theory – C

* [cold atom is quantum system]
* A cold atom, represented by Bloch Sphere model
* A Bloch Sphere - geometrical representation, two-state quantum mechanical system.
* [Gyroscope good model]
  + Inner disk is intrinsic spin
  + Procession is same as atom in mag field
* Angular mom
* Torque
* Procession (omega)
* Magnet torque

Progress - E

Feasibility Studies – C

* Faraday disk
* Homopolar generator with arm magnets
* (Tachometer and motor arrangement)
* Torque from magnets

FEMM Analysis - C

* FEMM is: Finite element solver for 2D and axisymmetric magnetic, electrostatic, heat flow, and current flow problems.
  + Magnet and axisymmetric used here
* First, modelled the 6 magnets along the axis as seen
  + Describe
* Magnets with coils in a magnetic field to calc force for magnet moment
  + Needed for feasibility of procession with torque from magnets
* Coils only to calculate the b-field produced with the graph
* Mu calculated
* B-field check done
  + Biot-Savart law

Methods – E

* Why need drive -
* Motor on gimbals

Programming – E

Plans – E

* How attaching motor and battery
* Why ratio of cogs
  + 1:5
  + Gear ratio has to be low enough such that there is a low rate of rotation
  + This is limited by the minimum reading rate of the tachometer, but this can be countered

Summary - C

* Repeat
  + Title
  + Things told
  + To do

Bibliography