Assisted-Balance Bicycle

A universal addition to bicycles to help assist a rider with balancing

Cycle 1

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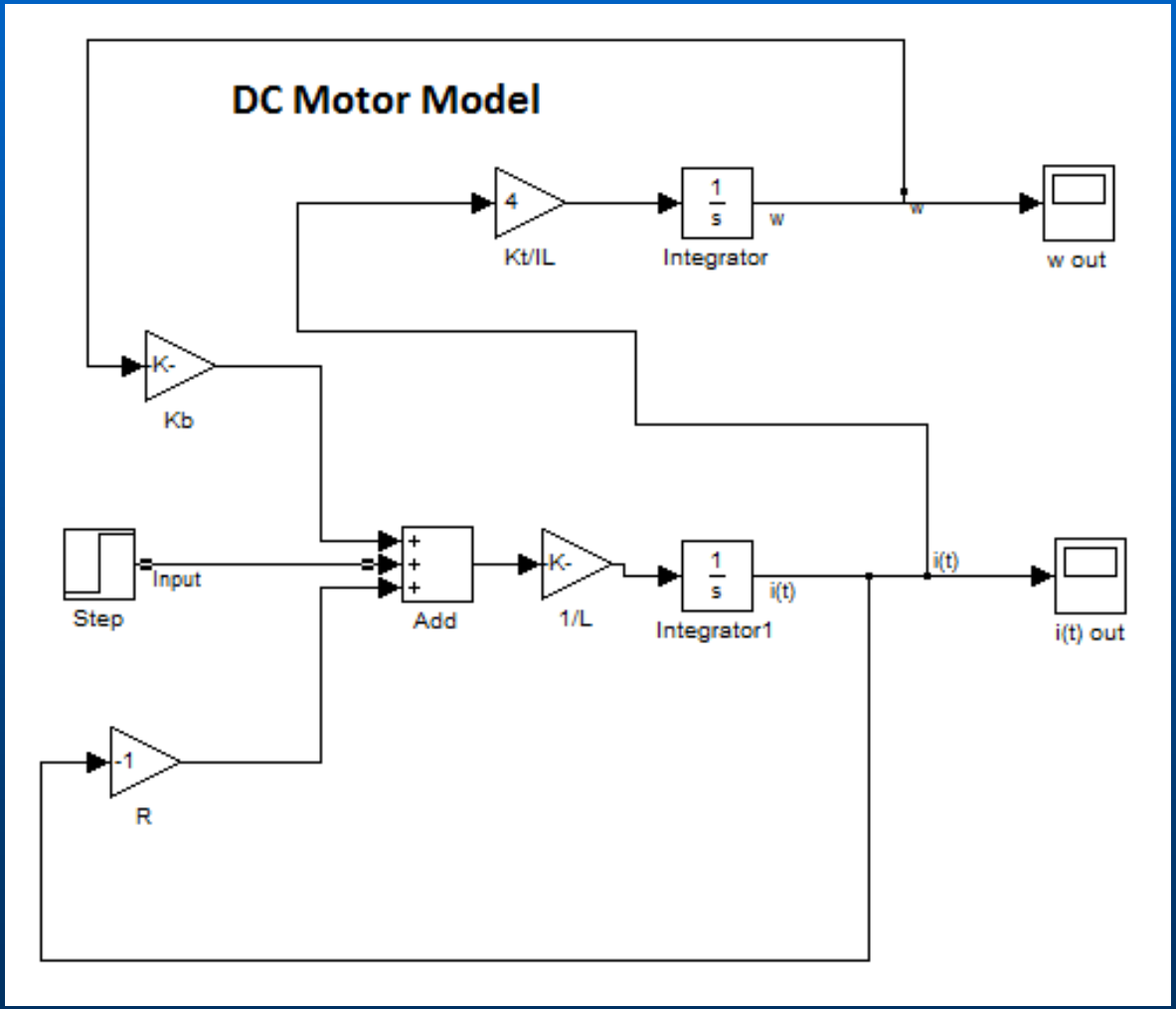
Dynamic equations

- Torque equation T=M*R^2*α

- Due to coupled forces the torque of the bicycle and the torque of the flywheel can be set equal to each other:

$$M_b \times R_b^{\,2} \times \alpha_b = M_f \times R_f^{\,2} \times \alpha_f$$

Control System



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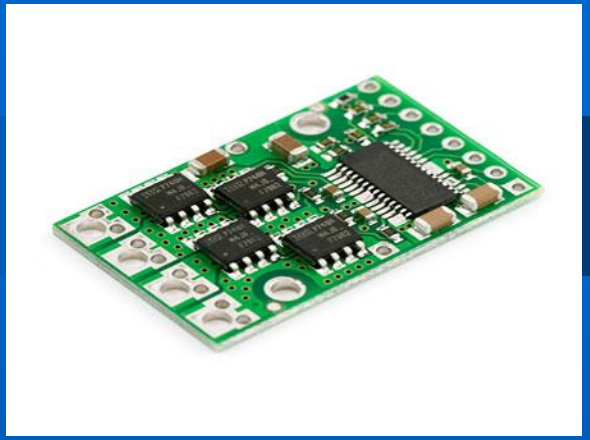
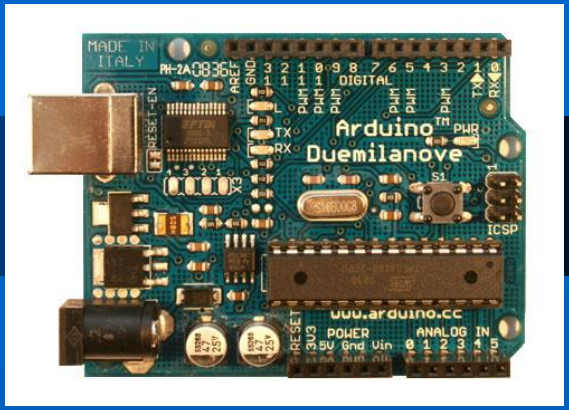
Hardware



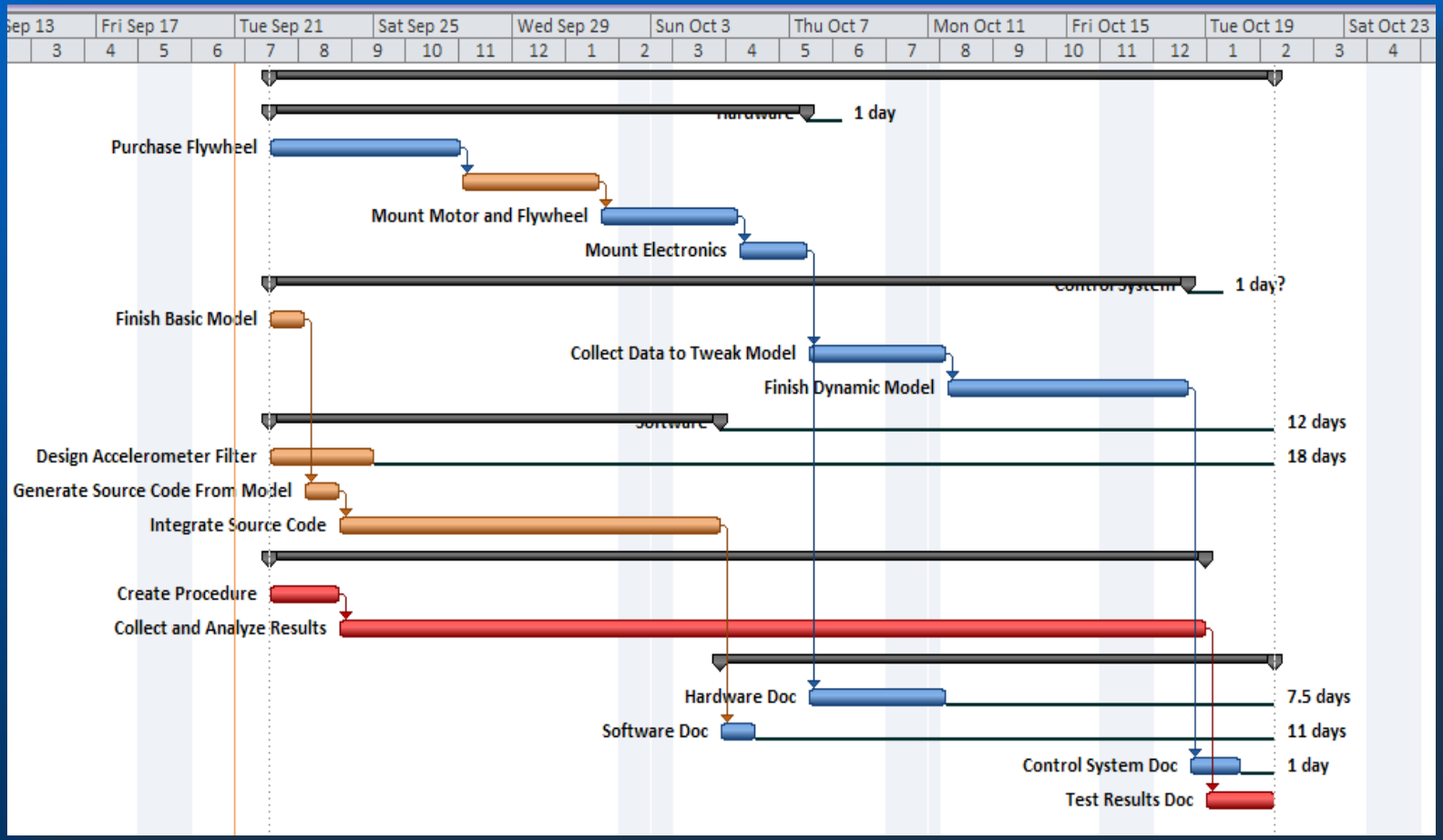


- Hardware List
  - Arduino Duemilanove Microcontroller
  - Memsic 2125 Dual Axis Accelerometer
  - Bosch Cordless Drill Motor/Batteries/Charger
  - Bike
  - Mounting Hardware
  - Flywheel
  - Motor Controller

Costs

- Spent So Far: $288.46
  - Motor/Batteries/Charger: $153.49
  - Accelerometer: $34.99
  - Microcontroller: $29.99
  - Motor Controller: $39.99
  - Misc Expenses: $30
- Original Projected Budget: $461.47

Timeline



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Demonstration

Questions?