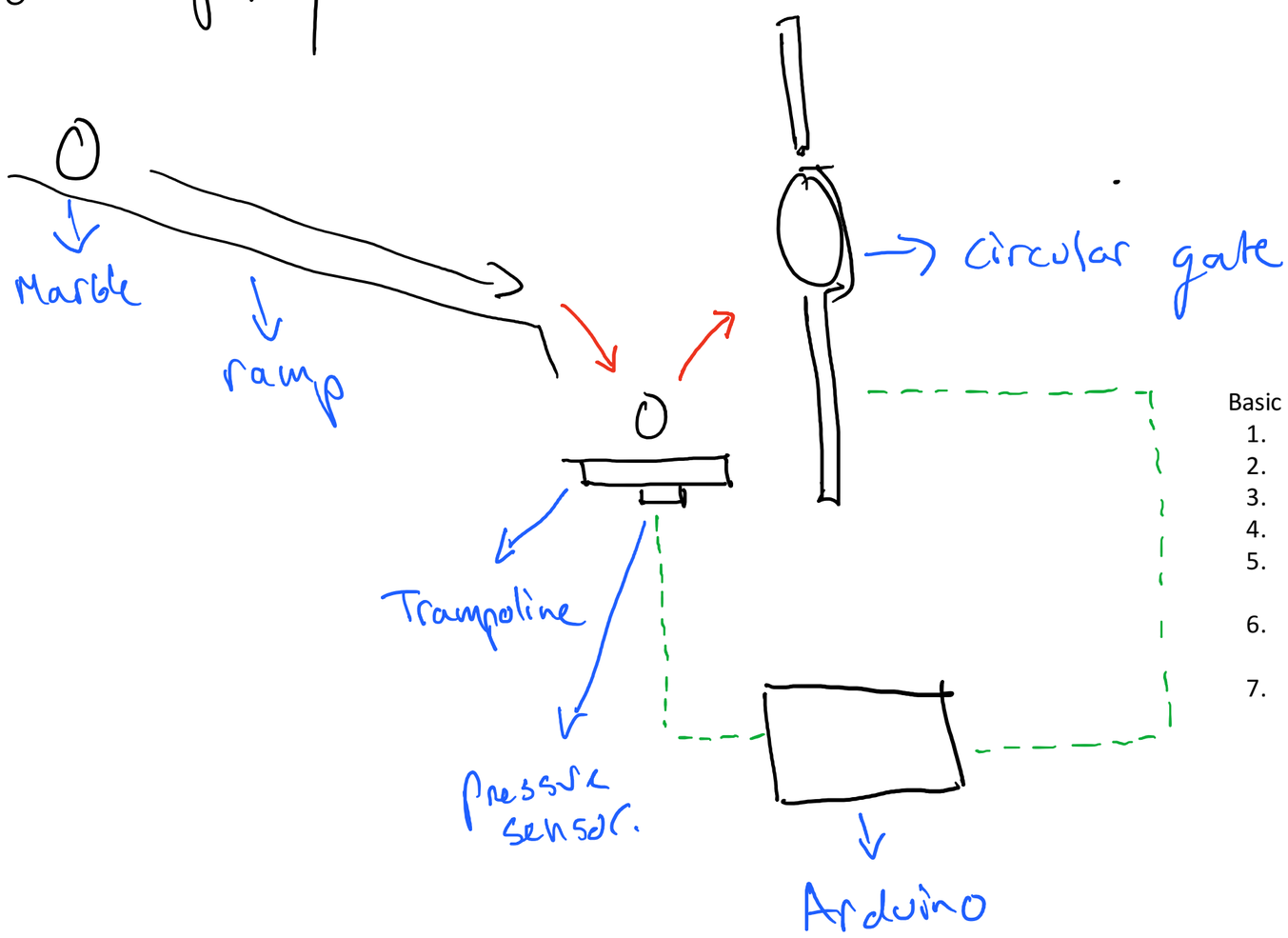
Saturday, October 1, 2016 1:10 PM

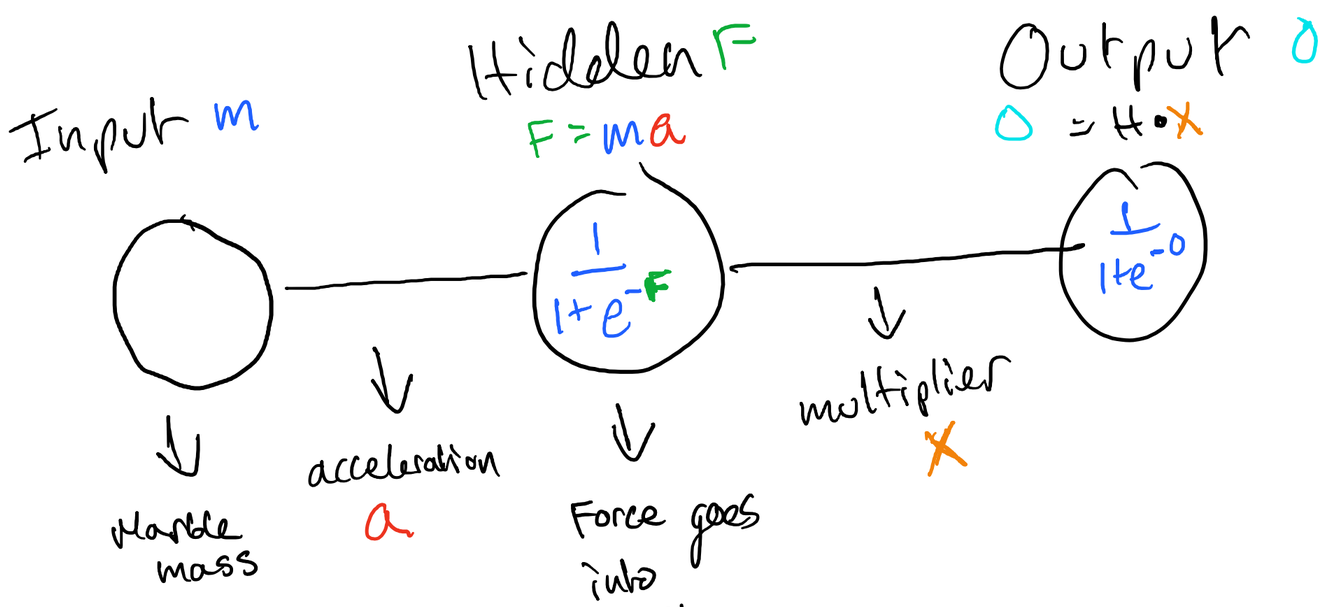
Idea: physical neural network.



Basic idea:

1. Marble is passed into ramp.
2. Marble hits trampoline.
3. Pressure sensor underneath trampoline measures the force of the marble.
4. Marble rebounds towards circular gate.
5. Based on the force, arduino sends signal to circular gate to move to certain height for marble to pass through.
6. Internal neural network backpropogates and adjusts how much the gate moves in response to marble mass.
7. Eventually device learns how highly to move the gate based on mass of marble and force it provides to trampoline.

Neural Network Desc:



$$H = \frac{1}{1+e^{-F}}$$

$$f(x) = \frac{1}{1+e^{-x}}$$

$$f'(x) = f(x) \cdot (1 - f(x))$$