High Striker
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6.111 Fall 2010 Project Presentation
What is High Striker?

*High Striker aka Test Your Strength*
Project Diagram
Accelerometer, ADC Interface

- FSM to generate control signals for ADC
- Samples incoming analog signal as fast as possible and presents data to other modules
Accelerometer force to velocity

- Time integral of acceleration
- On each ready signal, add data value to accumulator
- Scale by "mass": adjustable sensitivity

\[ v_0 = \frac{1}{m} \int_{0}^{t} \vec{a} \, dt \]
Signal Detector

*How to know when the game has started*

*Hijacking from lab 4b*

TRANSMITTER 40 KHZ SIGNAL RECEIVER

IF(SIGNAL) GAME NOT STARTED

TRANSMITTER

ELSE START GAME & RECORD ACCELERATION
Physics Module

* The motion of the ball moving up and down the pole
* Adjusting if the ball hits the bell

\[ x = v_0t + \frac{1}{2}at^2 \]
Graphics

* Matlab will convert images to coe files stored in ROM
* Performance/Memory: 800x600, with 4 bit color
* Additional z-order logic
Audio Modules

- Matlab will convert audio clips to COE files stored in ROM
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