EECS192 Lecture 8
Mar. 7, 2017

Notes:
1. Check off-
   1. 3/10/2017: drop-and-run, velocity control, open loop fig 8
   2. 3/17/2017 Closed loop figure 8 drop and run
2. Quiz 4 line sensor 3/14
3. Community Spirit: PCB peer review, Piazza, helping fellow students
4. CalDay Sat. April 22 @ UCB,
5. Parts orders: Digikey only. Check out ACE hardware for other parts.
   Order own parts Sparkfun, Adafruit…
6. Line sensor processing HW1 due 3/14 – upload Python code to bcourses. (Will run on other data.)
7. Waterfall plot for line data
8. Lab safety/hygiene

Topics
• Setting up for debugger
• Speed sensing/velocity control
• Velocity control detail
• Feedback control overview
• Bicycle steering model
TSL 1401 line sensor NATCAR 8 bit

Frame 0

Frame 1

Frame 1-Frame 0

Frame 0

Frame 2

Frame 2-Frame 0

inner step cir1800-2300.csv
Lab Hygiene
Setting up for debugger:
see new directions on Piazza
Velocity sensing (recap)

\[ V \approx \frac{\text{change in angle}}{\text{change in time}} \]

On board…
Control overview

On board…
Proportional control:
\[ U = kp \cdot e = kp \cdot (r - y) \; ; \]

Proportional + integral control
\[ U = kp \cdot e + ki \cdot e_{\text{sum}} \; ; \]
\[ e_{\text{sum}} = e_{\text{sum}} + e \; ; \]