

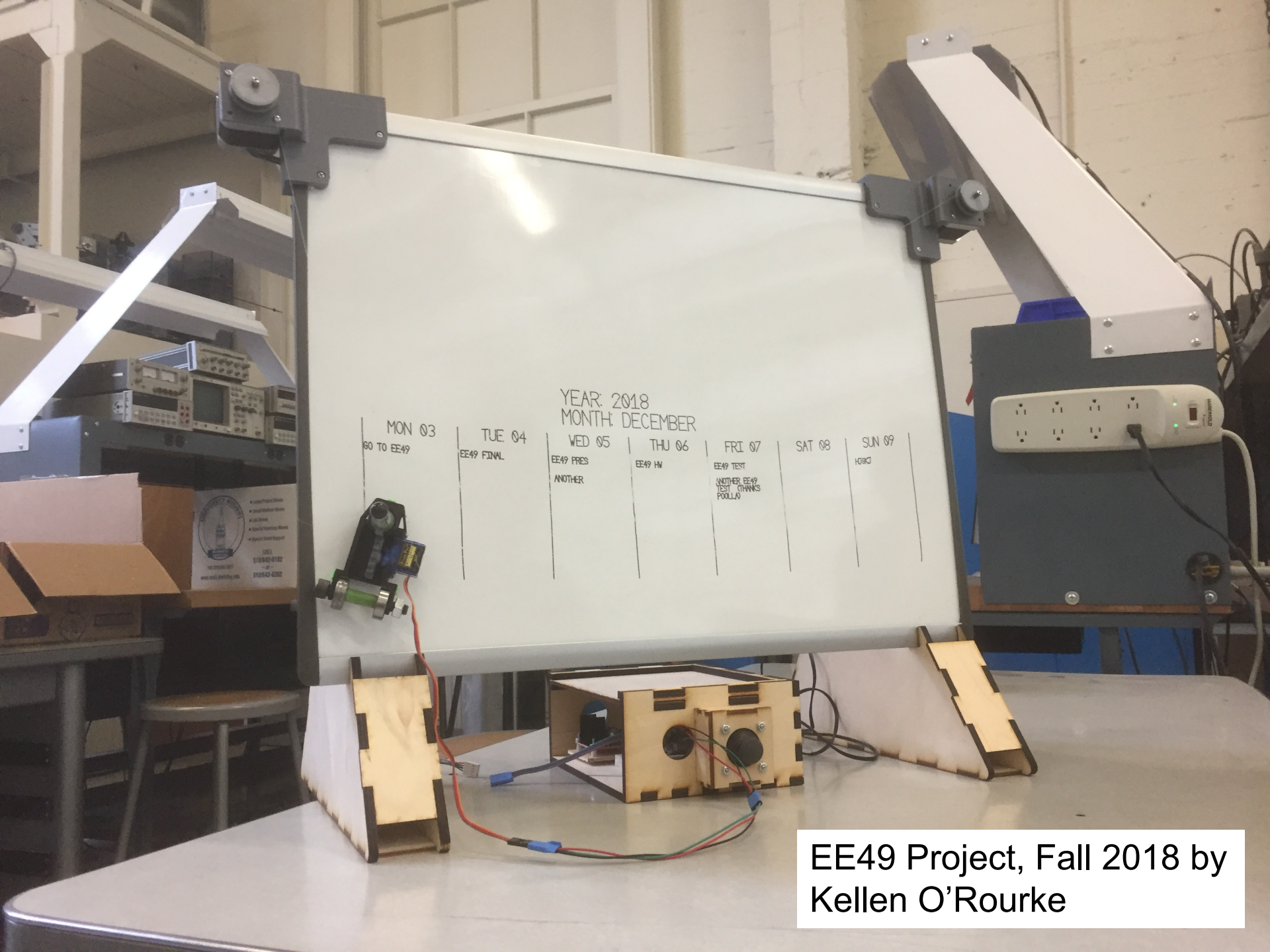
EE 49

Electronics for IoT

Overview

Outline

1. What is “Electronics for IoT”?
2. Administrative



YEAR: 2018
MONTH: DECEMBER

MON 03
80 TO EE49

TUE 04
EE49 FINWL

WED 05
EE49 PRES
ANOTHER

THU 06
EE49 HW

FRI 07
EE49 TEST
ANOTHER EE49
TEST CHANN'S
POOLLA

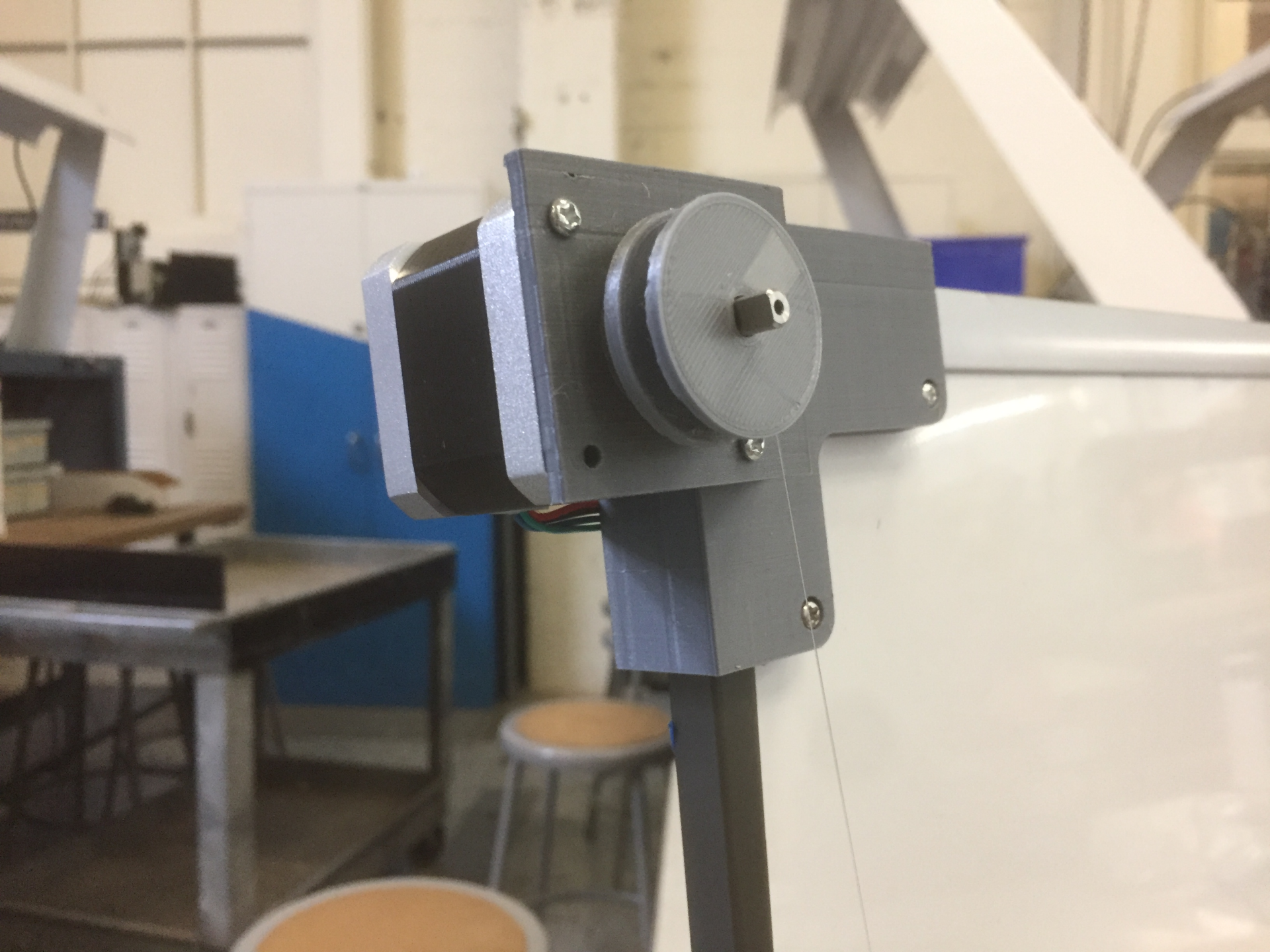
SAT 08

SUN 09
HONOR

EE49 Project, Fall 2018 by
Kellen O'Rourke

Demo (Time-lapse)



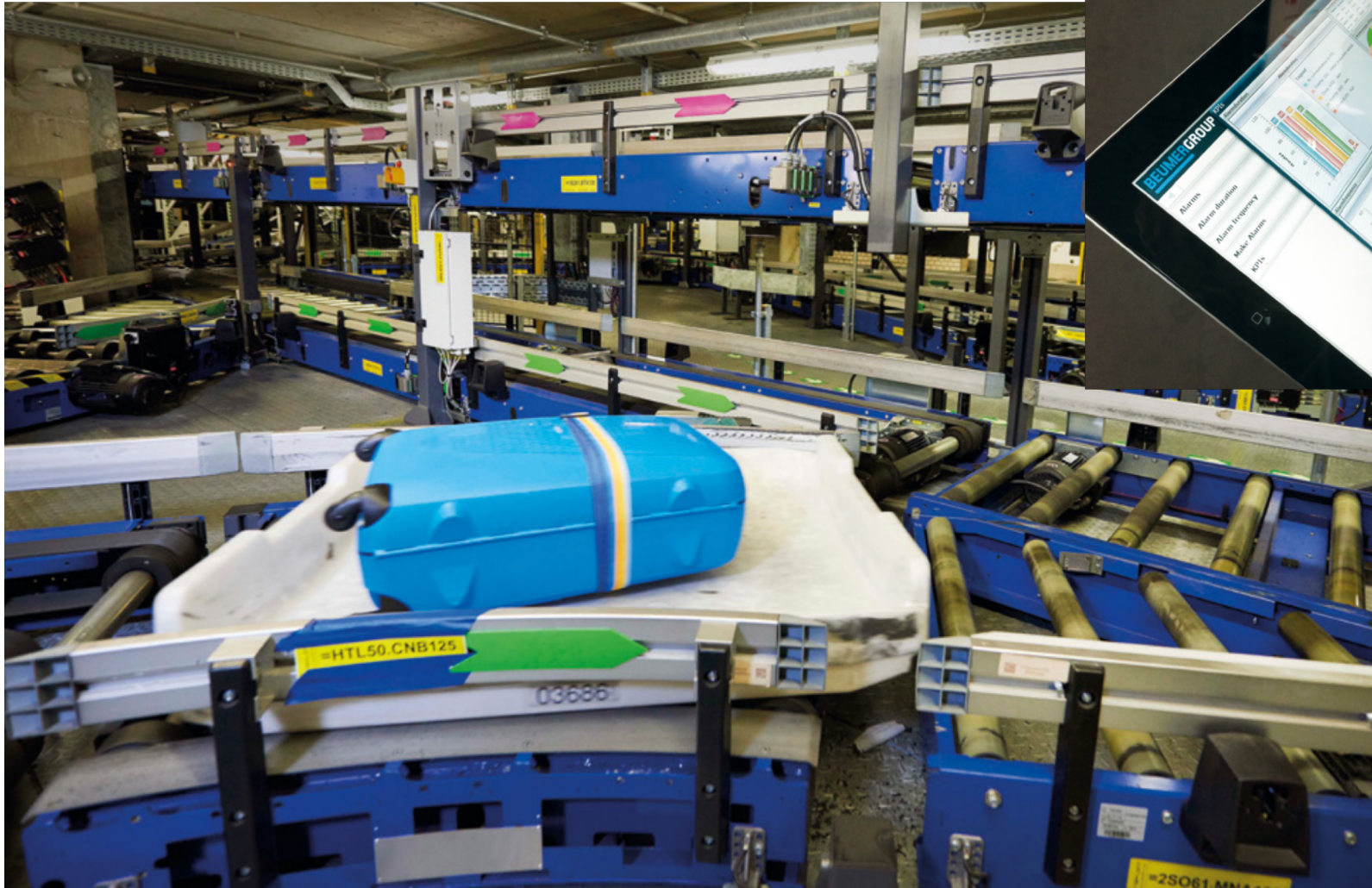


GO TO EE49

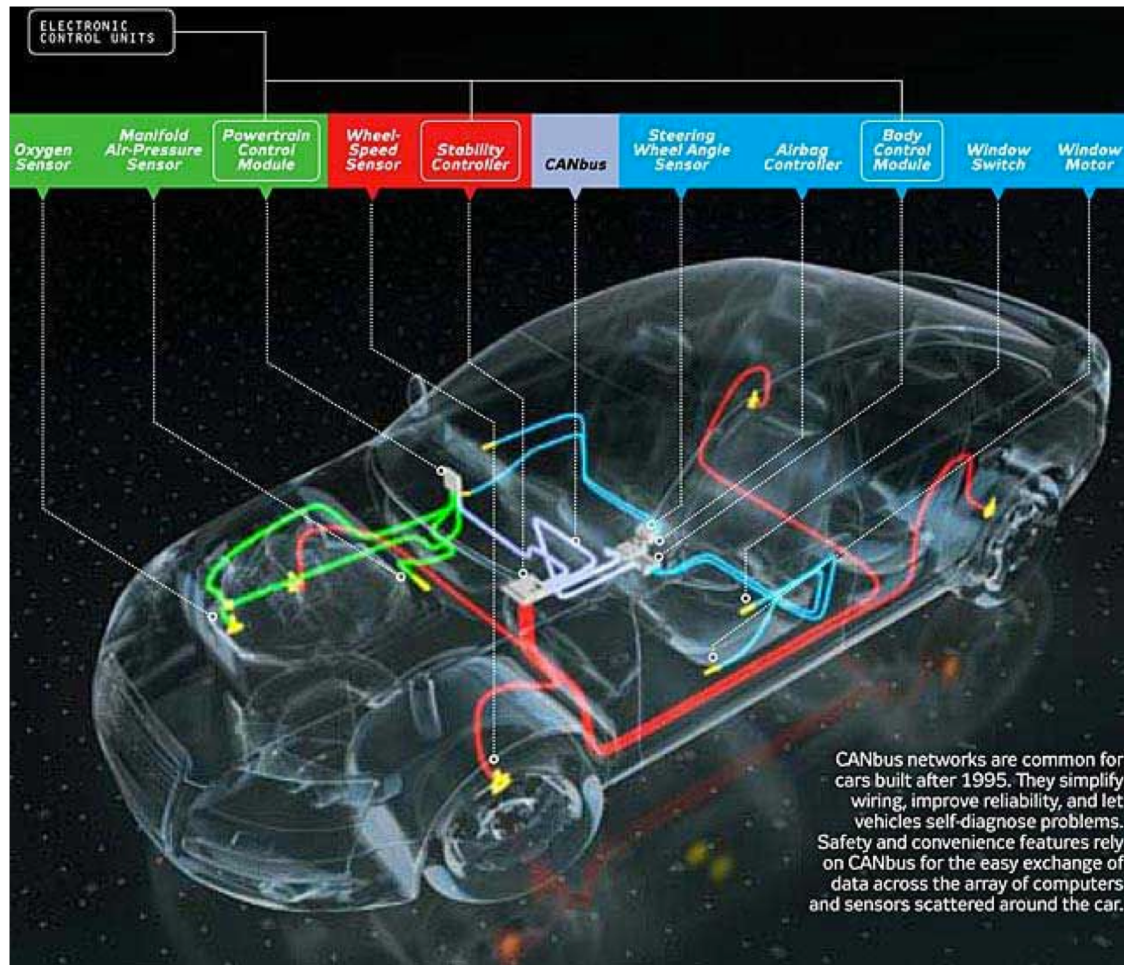
BOARD MARKER
BOARD MARKER



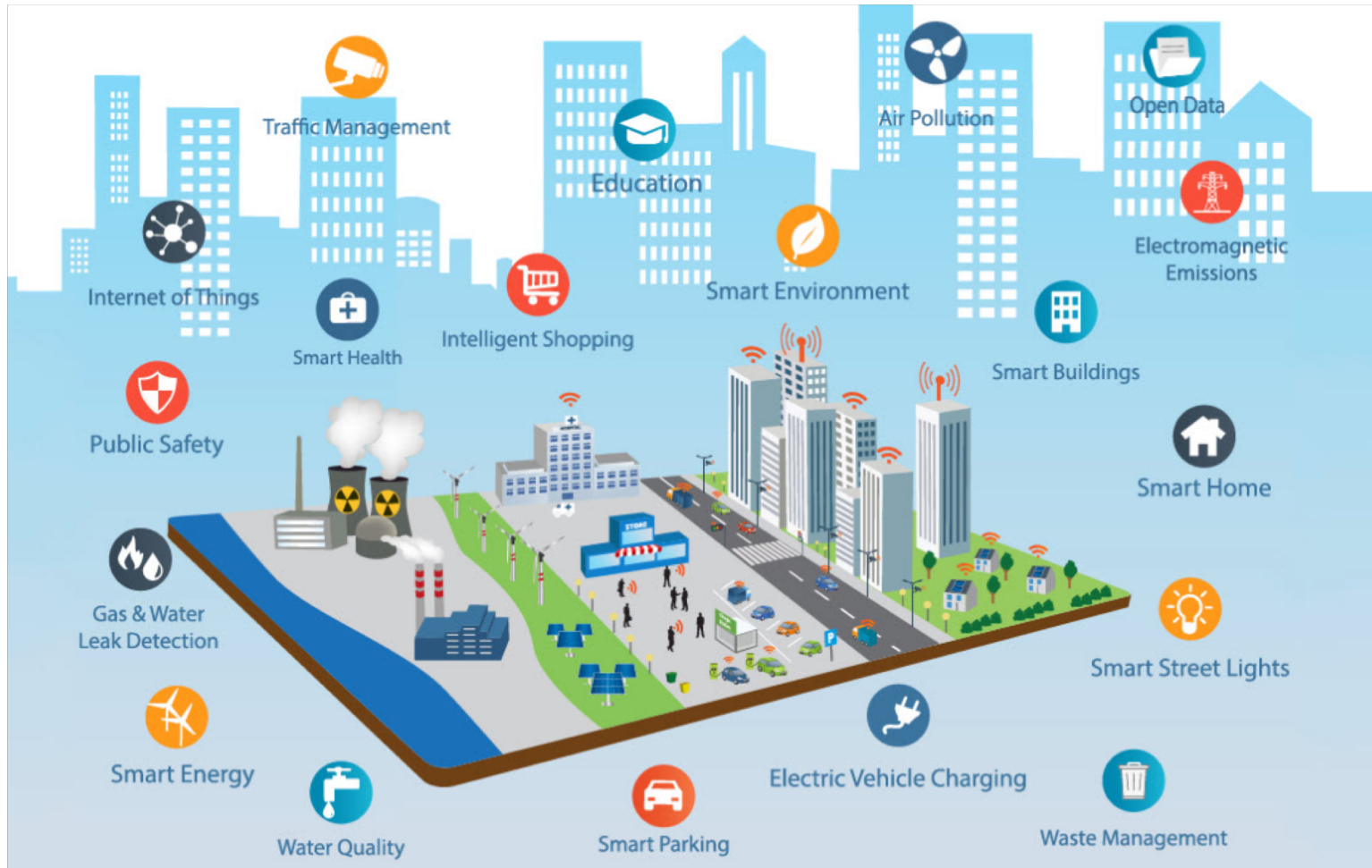
Industrial IoT



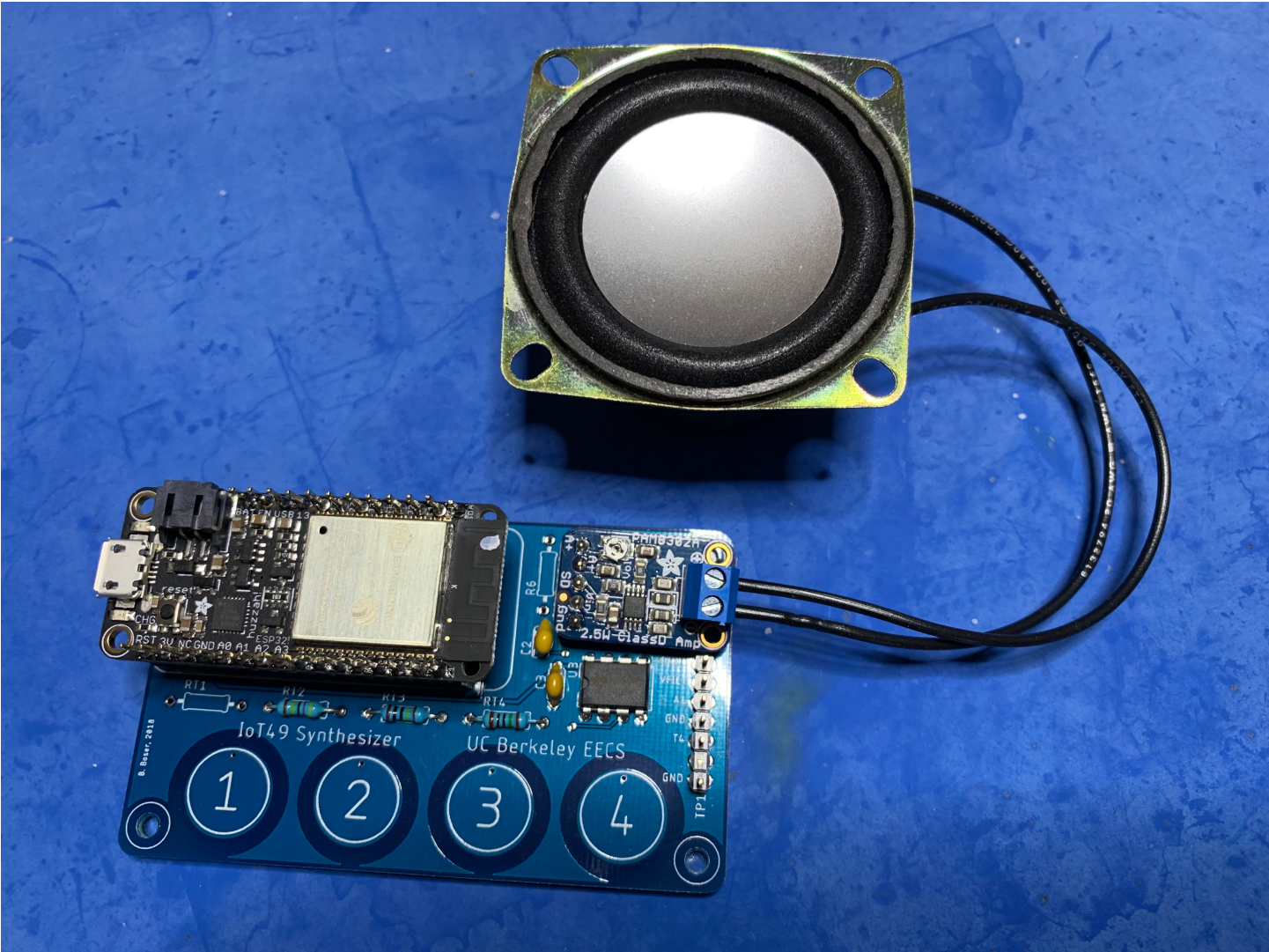
Cars



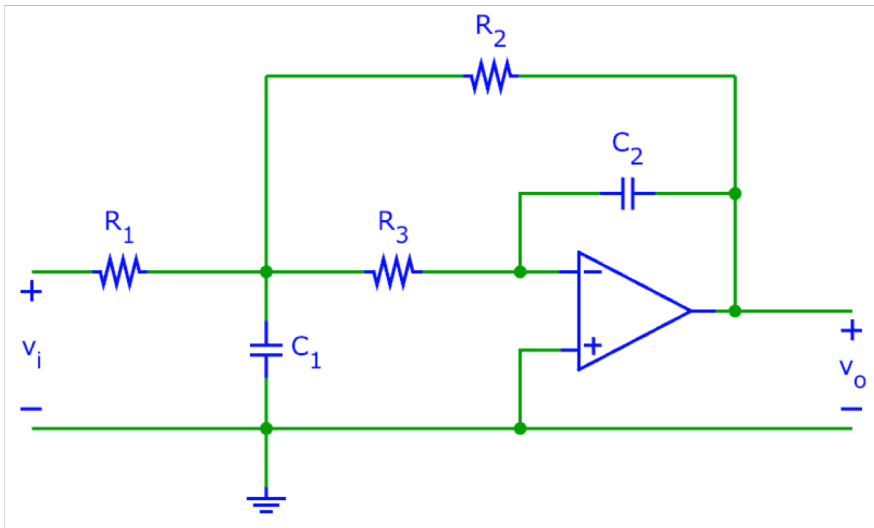
“Smart” City



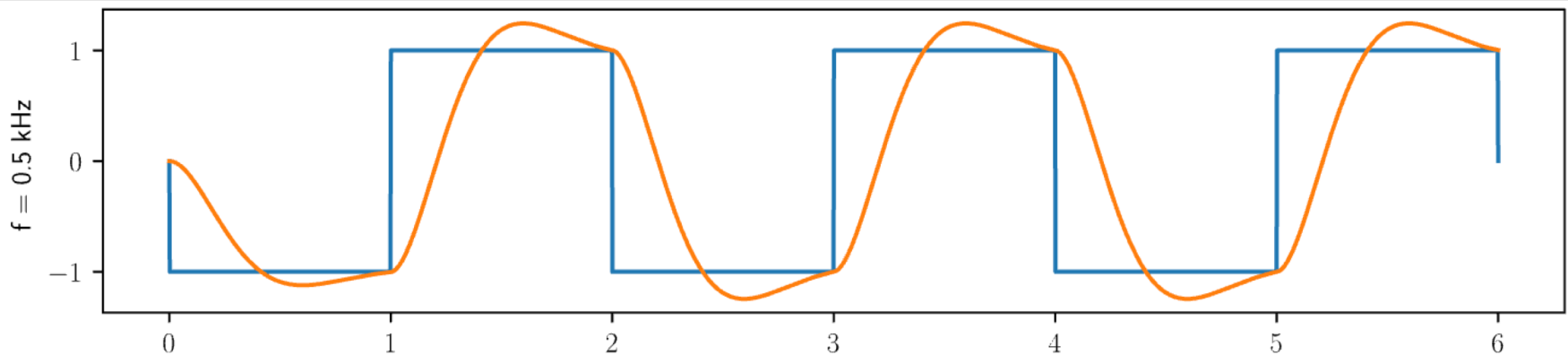
Electronics



Electronic Circuits

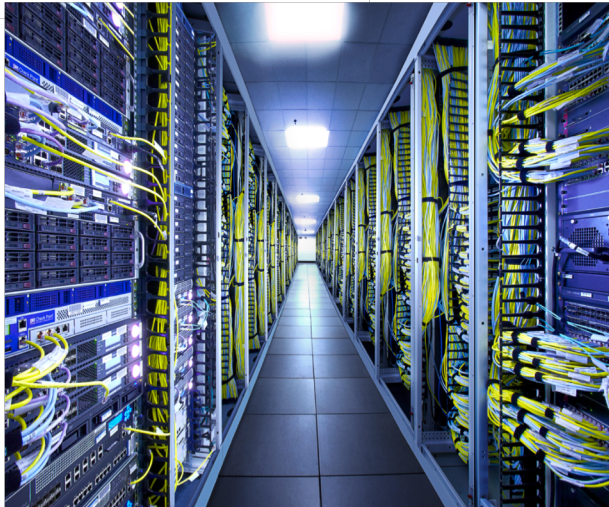


$$G = \frac{R_2}{R_1}$$
$$f_c = \frac{1}{2\pi\sqrt{R_2 R_3 C_1 C_2}}$$
$$Q = \sqrt{\frac{C_2}{C_1}} \frac{1}{\frac{\sqrt{R_2 R_3}}{R_1} + \sqrt{\frac{R_3}{R_2}} + \sqrt{\frac{R_2}{R_3}}}$$

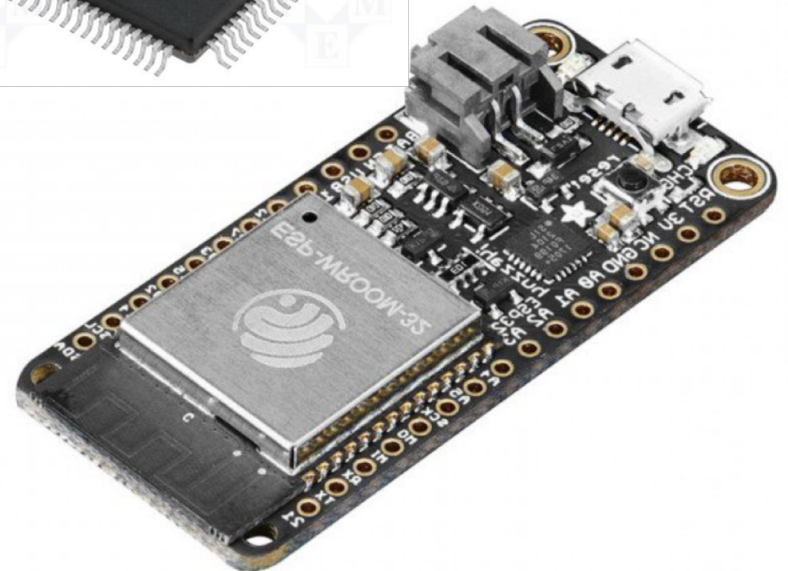
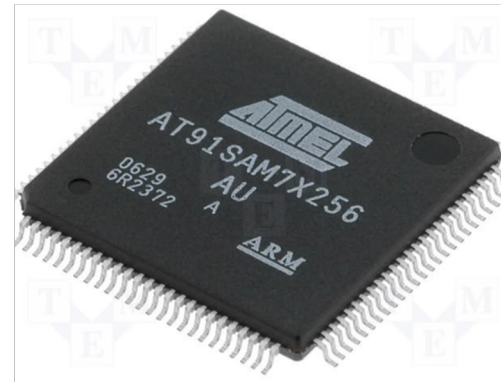


IoT “Brain”

Laptop, Datacenter



Microcontroller



Programming

- (Micro)Python
- Same ... laptop, datacenter, microcontroller!

```
class Account: ①

    def __init__(self, name): ②
        assert name != None, 'Name must not be None' ③
        self.name = name ④
        self.balance = 0

    def deposit(self, amount): ⑤
        self.balance += amount

    def withdraw(self, amount):
        self.balance -= amount

    def __repr__(self): ⑥
        return "{} has a USD {} balance".format(self.name, self.balance)
```

Administrative

<https://bcourses.berkeley.edu>

☰ EL ENG 49 - LEC 001

Spring 2019

Home

Course Website

Announcements

Piazza

Gradescope

Grades

People

Recent Activity in EL ENG 49 - LEC 001



No Recent Messages You don't have any messages to show in your stream yet. Once you begin participating in your courses you'll see this stream fill up with messages from discussions, grading updates, private messages between you and other users, etc.

Course Website

Table of Contents

- Schedule
- Weekly Schedule
- Staff
- Textbook & Notes
- Organization
 - Online Course Resources
 - Homework
 - Laboratories
 - Discussions
- Exams
- Policies
- Grading

Internet of Things (IoT)

Bernhard E. Boser – boser@berkeley.edu

Schedule

Discussions start in Week 2. First assignment is due 1/31/2019.

Week	Start	Topics (tentative)	Reading ^[1]	Lab (<u>Parts</u>)
1	1/21	Electronic signals & circuits	AS 1.1—6; Python	<i>no lab</i>
2	1/28	Circuit analysis	AS 2.1—2, 2.4—6	<i>choose lab partner</i> ^[2]
3	2/4	Microcontrollers, memory, I ² C	AS 3.1—2, 4.1—6	Solar DMM
4	2/11	Strain gauge, instr amp; MQTT		Solar with MCU
5	2/18	Opamps, feedback, L, C		MQTT
6	2/25	Time domain analysis; GPIO		Weather Station

Course Staff

	Name	Email	Office Hour
Instructor	Bernhard Boser	boser@	Tuesday, 1:30-2:30pm in 490A Cory Hall
GSI	Kyle Brady	kwbrady@	Thursday, 3-4pm
	Maruf Ahmed	maruf_ahmed@	Wednesday, 4-5pm
	Jeffrey Ni	jeffreyni@	
Readers	Hossein Najafi	hossein_najafi@	
	Peter Zhu	peterzhu@	

+ Piazza
+ Discussions

Homework

- Weekly
- Submit on gradescope (link on bcourses)

Labs

- **Teams of 2**

- Attend lab next week to find partner

- Attend lab you are assigned to

- Note: Tue lab is full, few students Wed

- Prelab

- Submit on gradescope

- Each partner separate submission

Discussions

- Note: **2 different** discussions per week
 - Monday focus: Homework (2pm or 3pm)
 - Wednesday focus: Lab

- Attend any session you want

Discussion Sections

Note: 2 DIFFERENT offerings each week!

Topic	Homework	Lab
Day	Monday	Wednesday
Sections	2-3 or 3-4pm	2-3 or 3-4pm

Attend whichever sections suits you

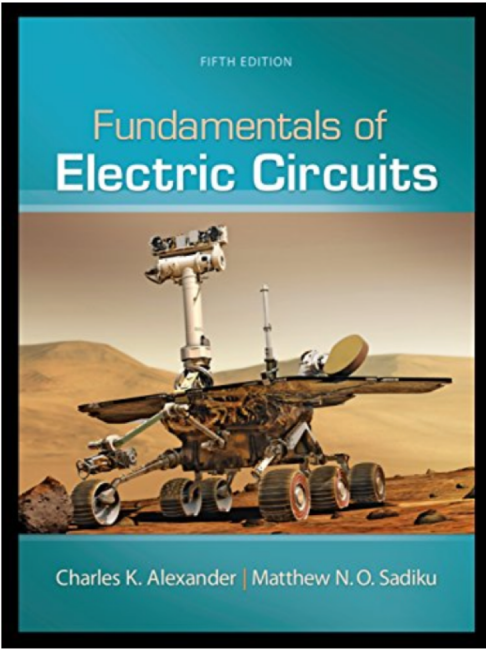
Grading

Homework	25%
Labs	25%
Exam 1	25%
Exam 2	25%

- 2 lowest homework scores do not count
- Complete all labs!

Textbook

Look inside ↴



FIFTH EDITION

Fundamentals of Electric Circuits

Charles K. Alexander | Matthew N. O. Sadiku

Fundamentals of Electric Circuits: 5 th Edition

Kindle Edition

by [Charles K Alexander](#) (Author)

★★★★☆ ▾ 170 customer reviews

> [See all 2 formats and editions](#)

Kindle \$5.41	Paperback from \$11.25
--------------------------------	----------------------------------

[Read with Our Free App](#) 14 Used from \$11.25
7 New from \$20.26

Alexander and Sadiku's fifth edition of Fundamentals of Electric Circuits continues in the spirit of its successful previous editions, with the objective of presenting circuit analysis in a manner that is clearer, more interesting, and easier to understand than other, more traditional texts. Students are introduced to the sound, six step problem solving methodology in chapter one and are consistently made to apply and practice these steps in practice problems and homework

- Covers electronics only
- IoT resources: online (+ lecture!)

DSP

- Register **NOW**

Questions?
