EEP 523:
MOBILE APPLICATIONS FOR SENSING AND CONTROL

SUMMER 2023
COURSE OVERVIEW

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EEP 523 – Mobile Applications for Sensing and Control

- **Remote learning course**
  - Synchronous lecture - on Thursdays from 6:00-~~9:03~~ 9:30pm using UW Zoom

- **Instructor:** Tamara Bonaci (tbonaci@uw.edu)
  - Office hours: Saturdays from 9:00-10:00am or by appointment
- **Teaching assistant:** Trung Le (tle45@uw.edu)

- **Course material:** Canvas and GitHub
- **Course discussion board:** Piazza
- **Assignment grades:** Canvas
- **Course assignment submission:** Canvas and GitHub

What is EEP 523, Mobile Applications for Sensing and Control?

In this course, we will learn how to develop modern applications for the Android mobile platform using Kotlin programming language.

We will learn how to develop modern mobile applications, and how to take advantage of many sensing and control capabilities that modern smartphones offer.

By the end of this course, you will be able to:

- Apply Kotlin programming concepts to Android application development.
- Implement dynamic graphical user interfaces for Android mobile apps which combine different elements and actions.
- Extract data from different hardware sensors of an Android smartphone, and to process and interpret that data for different applications.
- Program and control a microcontroller-based board.
- Develop and Android app to wirelessly communicate with a microcontroller-based board, and to be able to control different sensors.

(Expected) Course Progression

WEEK	Topics	Assignments
1 **June 24th**	Introduction My first Android App	HW1 (not-graded) Project proposal
2 **July 1st**	Android Programming (I)	HW2 HW1 due
3 **July 8th**	Android Programming (II)	HW3 Project update Project proposal due
4 **July 15th**	Smartphone Sensors	HW4 HW2 due
5 **July 22th**	**TinyML**	HW5 HW3 due
6 **July 29th**	Arduino programming (I)	HW6 HW4 due Project update due
7 **August 5tf**	Databases and Web Content	HW5 due
8 **August 12th**	Additional Android Topics	HW6 due
9 **August 19th**	Final project presentations	*Final project deadline*

Course Logistics

- **Course will be graded based upon:**
  - Homework: 50%
  - Project: 50%

Course Logistics - Homework

- Six programming assignments in this course
- The first assignment not required
- Homework assignments will be assigned every Thursday, and they will be due on Sunday the following week
- Please turn your submissions via GitHub.

- Overview of homework topics:
- HW1: Getting Started. My First Android App.
- HW2: Dynamic GUIs and Multiple Activities.
- HW3: BluSwap My Face!
- HW4: Real-time smartphone sensor data processing. Accelerometer/Gyroscope applications.
- HW5 : Practical Introduction to CNN on an Android App using TensorFlow Lite.
- HW6: Android-Arduino Control: Theft detector

Course Logistics - Project

- teams of 2-3

Individual or team projects

Project proposals due by 11:59pm PT on Sunday, July 11th

Project update due by 11:59pm PT on Sunday, August 1st

Class presentations on August 19th

- Instructions posted on Canvas
- ~10 min presentation + up to 5 min questions
- Live demo mandatory
- Presentations conducted in Zoom

Course Material

- If you can, try to "attend" lectures because:
  - Lectures will likely cover more than provided in lecture notes, and the provided references
  - Lectures will focus on "big-picture" principles and ideas
  - Your colleagues will likely start interesting discussions during lectures
  - In-class activities and discussions they will start

LATE TURN IN POLICY

All assignments are due **by 11:59pm on the assigned date (Sunday)**

Late assignments will (generally) be dropped 5% per calendar day, and no submissions will be accepted after 14 days

If you have a meaningful reason for delay (e.g., illness) – ***come and talk to us***

Exception to the late turn in policy: final projects must be turned in on time

Your Questions

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