Mobile Computing Overview

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U. Fiedler, BFH, T. Amberg, FHNW
Slides: tmb.gr/mc-how

Overview

These slides make sure you know what's up:

What you can expect from this course.

What is expected from you.

Hello

Dr. Henrik Stormer, stme@zhaw.ch, lecturer for development of mobile applications at ZHAW, School of Engineering.

Prof. Thomas Amberg, thomas.amberg@fhnw.ch, lecturer for IoT at FHNW, Institute of Mobile and Distributed Systems.

ECTS and effort

3 ECTS credits => 90 hours:

   14 sessions à 3 hours = 42 hours in class.

+ 24 extra hours for an integrated team project.

+ 24 hours of private studies & exam preparation.

Learning objectives: app development

Students know how to design and implement native applications for mobile devices running Android.

Students have basic knowledge of UI design guidelines and techniques relevant for mobile app design.

Students can describe the integration of their application with a backend Web service.

Learning obj.: sensors & connectivity

Students know how to use smartphone on-device sensor APIs for motion, position and environment.

Students have basic knowledge of prototyping a peripheral IoT device with an Arduino-compatible hardware platform, sensors and actuators.

Students have basic knowledge of connectivity options like Bluetooth Low Energy (BLE).

Dates 2023

18.09.	Introduction & App. Development 1
25.09.	Android Application Development 2
02.10.	Android Application Development 3
09.10.	Android Application Development 4

16.10.	Sensors & Connectivity 1
23.10.	Sensors & Connectivity 2
30.10.	Sensors & Connectivity 3
06.11.	Sensors & Connectivity 4
...	

Dates 2023/24

13.11.	Project Kick-off
20.11.	Independent* Project Work 1
27.11.	Independent* Project Work 2
04.12.	Independent* Project Work 3
11.12.	Independent* Project Work 4

18.12.	Project Presentation Day
W52	(Vacation)
W1-4	(No class)
W5/6	Assessment (TBA)
W10/11	Results (on demand)

*Hybrid mode

Learning objective assessment

A graded team project, due on *Presentation Day 0:00.*

A mandatory, written assessment of 120 minutes.

Counting 30% (project) and 70% (assessment).

The final grade will be a Bologna grade.

Assessment

120 minutes, open-book, Moodle assessment.

Slides and a personal summary are allowed.

Course repositories and Web search, too.

No communication (phone, chat*, …).

*Including AI chat tools.

Team project

3-student teams, building an IoT system.

8' online presentation of the project, plus 2' video.

Slides, source code, binaries, README on GitHub.

All team members are able to explain the project.

Details at the project kick-off.

Plagiarism

Unfortunately has to be mentioned, sanctions apply.

From *Betrug und Plagiate bei Leistungsnachweisen*:

"Wer in Arbeiten im Rahmen des Studiums Eigen-

und Fremdleistung nicht unterscheidet, wer

plagiiert, macht sich strafbar." - M. Meyer

Using 3rd-party code? Make it clear, check license.

Course materials

The official course site is TSM_MobCom on Moodle.

Android content will be there, sensors & connectivity

slides and source code examples are on GitHub at

https://github.com/tamberg/mse-tsm-mobcom

Communication

We use Microsoft Teams to communicate.

For remote lessons via video stream.

And as a asynchronous chat.

Tools and languages

Android Studio for Android native development.

Arduino IDE for Arduino C development.

Git version control for source code.

Smartphone

Bring your own Android smartphone.

Ideally not much older than 3 years.

Android version 10, or newer.
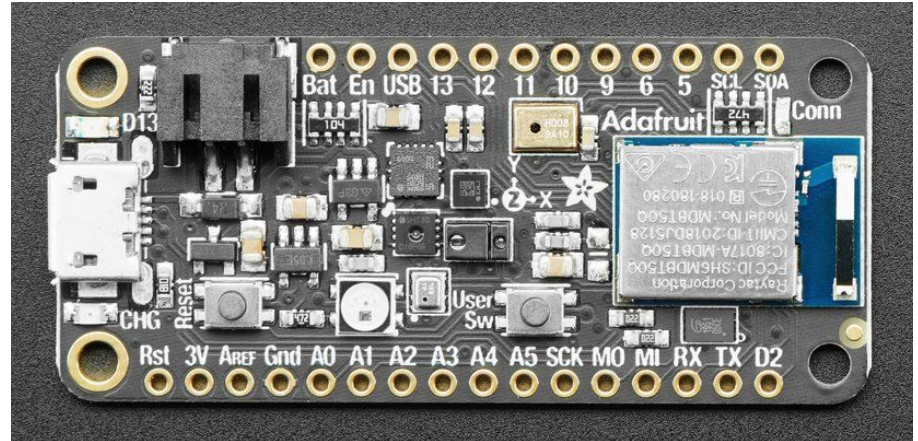
No such phone? Get in touch.

Embedded hardware

Adafruit Feather nRF52840 Sense

ARM Cortex M4 based SoC

Bluetooth Low Energy

Built-in sensors

CC BY-SA, adafruit.com

Feedback or questions?

Join us on MSE TSM MobCom in MS Teams

Or email thomas.amberg@fhnw.ch

and stme@zhaw.ch

Thanks for your time.