CS4605 Syllabus

Course Information

Course Prefix and Number: CS4605
Course Name: Mobile and Ubiquitous Computing
Instructor: Ploetz, Thomas

Course Description

Mobile and Ubiquitous Computing are often referred to as the third generation of computing, in which users continuously interact with not just one but many computing devices. The latter are thereby embedded in their users' everyday environment in such a way that users—ultimately—will not even be aware of their interaction with computers. In this class, students will explore the third generation of computing (and beyond) that enables continuous, especially ubiquitous, computing.

Course Learning Outcomes

Students will learn the technical foundations of sensing and computing that are prerequisites for continuous, seamless interactions. Based on these foundations, students will work on practical projects that address cutting-edge real-world problems and develop innovative solutions through mobile and ubiquitous computing. Beyond providing a solid technical foundation for mobile and ubiquitous computing, the course will focus on aspects of how to actually make, that is, build and deploy, mobile and ubiquitous computing systems.

Upon successful completion of the course students will be able to:

- Build on the foundations of mobile and ubiquitous computing to develop practical applications;
- Discern the capabilities of different components of mobile and ubiquitous computing, which allows for informed decisions on the usefulness and usability of resulting interface and potential technical challenges;
- Exploit the potential of mobile and ubiquitous computing techniques for real-world applications.

Required Course Materials

We will make use of the following textbook:

Krumm, J. (2009). Ubiquitous Computing Fundamentals (1st ed.). Chapman & Hall/CRC. http://www.amazon.com/Ubiquitous-Computing-Fundamentals-John-Krumm/dp/1420093606.

For the prototyping exercise, as well as for general prototyping activities, we will use the following kit, which students are asked to purchase at the beginning of the class (one kit per project team is sufficient):

Name	ELEGOO UNO Project Super Starter Kit with Tutorial and UNO R3 Compatible with Arduino IDE
Description	Starter kit for Arduino-like prototyping containing breadboard, jumper cables, selection of sensors and actuators, power supply, tutorial etc. Compatible with Arduino UNO R3, MEGA 2560 R3, NANO.
Purchasing option	https://tinyurl.com/MUChardware (Amazon; likely to be available elsewhere as well)
Approximate cost	$45
Note	If students already have access to similar hardware, then there is no need to purchase. Yet, in-class activities and potentially project work is based on access to hardware like this.

Grading Policy

Overall course grading is based on the Georgia Tech letter grading system (A through F, as defined at https://registrar.gatech.edu/info/grading-system). The various components of the course contribute to the overall grade as follows:

Contributions to Overall Grade (tentative, subject to adjustments)

Grade Component	**Max. grade contribution**

3 graded group exercises – best two count but all must be successfully attempted (at least 70%): • Sensor data analysis • Prototyping • Indoor Localization	10%
4 Graded Individual Exercises - Best 3 count but all must be attempted (at least 70%) • Gesture Music Player • Eyetyping • Head Worn Displays • Smartphone Development	10%
Project deliverables: • Individual Mini Proposal/Survey [5%] • Teaser Video [5%] • Proposal [10%] • Halftime update [10%] • Final Demo/Poster [10%] • Final Report [20%])	60%
Final exam	20%
Total	100%

Calculating Final Grades

Each component (as described above) will be graded separately accumulating points towards the overall course grade. The final, overall course grade is then calculated as follows:

Accumulated percentage grade	
90-100%	A

80-89%	B
70-79%	C
60-69%	D
<60%	Not passing

Attendance Policy

This will be an active classroom, where you will be expected to participate. Project presentation sessions are mandatory for all students to attend.

Academic and Research Honesty/Integrity Statement

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review the Georgia Tech's Honor Code and the Student Code of Conduct.
Any student suspected of cheating or plagiarism on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Core IMPACTS

Not applicable.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs contact the Office of Disability Services

Student-Faculty Expectations Agreement

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. The articulates some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class. Expectations of Advisors and Advisees