Principles and Design of IoT Systems (PDIoT)
(INFR11150) - 20 credits

Overview

Wednesday, 18 September 2024

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- The introductory meeting of the PDIOT course will take place on Wednesday, 18 September, 2024 starting at 10am in Room AT3.09.

- All students registered (or in the process of registering) for the course should attend the introductory meeting

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PDIOT Delivery Team

1. Course Organiser/Lecturer – D K Arvind (dka@inf.ed.ac.uk)

2. Course Instructor – Andrew Bates (cxb@exseed.ed.ac.uk)

3. PDIOT Lab (AT3.09) supervisor – Garry Ellard (Garry.Ellard@ed.ac.uk) and Katy Lobban (klobban@ed.ac.uk)

4. Course Demonstrator – Passara Chanchotisatien (passara.chanchotisatien@ed.ac.uk)

5. Course Secretary – Yesica Marco Azorin (ymarcoa@ed.ac.uk)

Please use Piazza in the first instance to ask questions and share information

Structure of the Course (100% coursework)

- Coursework-1 [10% marks] – Released on 18 Sept. '24, Deadline: 1 Oct. '24

Labelled sensor data collection (Individual)using the Respeck and the Thingy for a set of prescribed physical activity which will contribute to a common dataset for training ML Human Activity Recognition (HAR) algorithms in CW3

- Coursework-2 [20%]– Released on 18 Sept. '24; Deadline: 25 Oct. '24

Personal research on a given topic in Internet of Things and distilled in a 3,000-word essay (individual)

- Coursework-3 [70%] – Released on 18 Sept. '24; Demonstration on 20 Nov. '24; Final report: 17 Jan. '25

Implement a human activity recognition system for the data collected in CW1 by applying machine learning techniques on the IMU data and displaying results in real-time in an Android app (team)

Skills you will learn

- Sensor data analysis using Machine Learning

- Android development

- Bluetooth communication

- User Interface design

- Teamwork and written and verbal communication skills

- Research using primary sources to write a coherent technical essay on a IoT topic

Today

1. Outline of activity in Week 1

2. Data collection protocol (Passara Chanchotisatien)

3. Formation of student pairs (after 15 minutes of 'speed-dating')

4. Fill in the form with your name, email, degree, github user name, Lab time <10am|11am|12 noon>, Group name alphanumeric <A … Z>

5. Collect the hardware kit from Garry Ellard and get access to locker

6. Fill in the tutorial time for CW2 in the form (Weeks 2-5) <Tues10h00|Tues11h10|Thu10h00|Thu11h10>

7. Each student will be asked to sign an ethics form to enable sharing of data collected by students for teaching and research purposes.

Attendance

1. Attendance as a group at the chosen time of your Lab session is compulsory (Attendance will be taken)

2. Attendance at the chosen time for your tutorials for CW2 in Week 2-5 is compulsory

Good Citizen Rules for using the Respeck

1. Always insert the Respeck in the plastic bag provided before attaching it to your torso using the Mefix tape.

2. Tear down the Bluetooth connection once you have finished using the Respeck and before handing it to the next user

3. Wipe the sensor clean with a wet cloth before handing it to the next user

4. Agree with your partner on the times when you wish to use the Respeck sensor and be punctual in returning/sharing the sensor

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