Assignment C1 (2021/2022):

PUSL3108 Pervasive Computing.

This coursework consists of two parts which both must be worked on.

# Part A: Field Study Write-Up (50%)

## Objectives:

Investigate and Deepen Understanding of real-world applications of pervasive systems. Observe and analyse the behaviour of systems “in the wild” and draw in knowledge from personal research to analyse their behaviour.

## Specification:

Investigate and document **2 distinct examples** of pervasive systems in your local environment that use sensors and actuators. Take a photo of the environment and the system setup.

* CCTV camera with motion sensors to switch on lights when motion detected-confirmed.
* Alexa or Siri
* ETC lane – confirmed.
* Shikari’s vehicle seating arrangements
* Tracking systems

For each system pick a case where the system is either not well adapted or designed for their intended task. This could be faulty behaviour due to the setup or a change in the environment rendering the system less optimal or it could be working not properly. Don’t pick a system that is just broken due to physical damage. Explain the system’s intended task.

Discuss **for each** system (**in 5 bullet points,** each one should be at least two sentences):

* the features (what makes the system unique),
* the shortcomings (what problems does the system have),
* the strengths (why is the system useful)
* two possible improvements (Analyse **why** the system is not fitting for its task and **how** it can be improved.)

Each bullet point should be a single argument such as a system feature or a single fault.

# Part B: Design a new System (50%)

## Objectives:

Conceptualise and design a new pervasive system by incorporating the knowledge you gained from analysing real-world systems and content of the lectures and your own research.

## Specification:

Design **1 pervasive system** *(a smart device)* that is useful and designed for a specific case of your local environment. It should integrate multiple technologies (sensors, memory, a computational unit, etc.) but does not need to integrate actuators. **The system needs to be novel and not describe a system developed by somebody else (including following instructions or tutorials from the internet).**

For your **concept**, explain the system’s intended task and the environment it should operate it in one paragraph (at least 3 sentences). Create a **list of requirements** for your system and then describe the design process (What did you try? Why? How?). You can use images to illustrate the design and support the following five arguments.

**Pick 5 features** (Unique selling points) of the new system you want to discuss in more detail and describe your design, the limitations, the strengths and rational for including that specific feature into the device. Back up your reasoning with arguments. Each bullet point should be a single argument.

# Deliverables:

This is a group assignment, make sure to clearly state the contribution of each team member on the first page in percent or state that the contributions are equal. Groups will be formed under the ‘Coursework Group Allocation’ section on the DLE by 04/04/2022. After this date you will be automatically assigned to a group. Any issues with this please contact the module leader as soon as possible.

## Part A:

On the top of the first page, state the name of the system you are describing and include at least one photo of the actual system and of the environment you are going to discuss.

This is followed by a short paragraph on intended task of the system.

Continue with a list of **5 bullet point paragraphs** in addition to the system description above. This part should be **at least** **half a page**.

Each bullet point should be seen as independent, pick one distinct argument and examine, analyse and summarise it.

You should be demonstrating your understanding by backing up arguments through research into the background theory, references and justification.

For this part of the work, everything **below a page of text or beyond 6 pages** will reduce your score.

## Part B:

At the top of the page, state the name you are giving your device followed by a paragraph on the intended task of the system. Remember to take the specific environment into account. Also discuss the design process of how you designed the device starting with the concept, the early design and your final choice of design. You can use images to document the design process. Describe the design process of the system in one paragraph.

Continue with a list of **5 bullet point paragraphs** (at least two lines each).

Each bullet point should be seen as independent, pick one distinct argument and examine, analyse and summarise it.

You should be demonstrating your understanding by backing up arguments through research into the background theory, experimentation, references and justification.

For this part of the coursework, everything **below a page of text or beyond 6 pages** will reduce your score.

Assignment weighting A: 50% of the mark

Assignment weighting B: 50% of the mark

## Assessment Details:

**Refrain from using** longer passages or clips of **commercial material** or external sources that are not under free license to not infringe their copyright.

To estimate the length of your text, use an A4 page with the Arial 12pt font.

**Save your work as a .pdf** file. If you do not use the correct file type (.pdf) or follow these instructions your work **will not** be marked.

A guide on how to submit using Moodle can be found in the “Supporting Documents” section.

You are expected to back up your arguments and demonstrate that you understand the relevant theoretical and empirical material. You will be assessed on the following criteria:

* Knowledge and Understanding: The degree to which it develops and moves beyond the material presented in the teaching sessions in the module and makes use of appropriate literature available on and offline. *(Learning Outcome 1)*
* Analysis& Design: The degree to which it demonstrates that you can be reflective and provide accurate evaluation and implementation of the material presented. *(Learning Outcomes 1&3)*
* Argument: The extent to which an argument is developed, discussed and sustained with appropriate supporting evidence demonstrating independent thinking and critical reflection. *(Learning Outcomes 2&4)*

## Learning Outcomes:

This assignment assesses the following learning outcomes:

1. Track and monitor your design process when designing a novel pervasive device.
2. Reinforce soft skills on project management.
3. Develop Physical/Software prototypes by integrating your gained knowledge and experience.
4. Present and summarise your own work and learn how to incorporate research.

## Key Dates:

**Assignment Issued:** 22nd February 2022

**Final Submission:** Wednesday 27th of April 2022 16:00 (local time)

## Marking Criteria:

Marks are based upon the following criteria:

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(a) Marks < 40% indicate work that is poorly written and does not demonstrate an understanding of the subject matter. The submission would have little or no evidence of research, and does not provide analysis, evaluation or critique of the information provided.

(b) Marks ≥ 40% The quality of the work suggests a basic understanding of the subject present basic evidence in terms of factual statements and answer the majority of the stated requirements.

(c) Marks > 50% The quality of the work suggest a good understanding and you must consider the majority of issues presented in the assignment brief and present a degree of evidenced discussion based upon a range of sources.

(d) Marks ≥ 60%: The quality of the work suggests a good understanding of the subject with evidence of research and analysis, evaluation and critique of the material. The submission is well written and presented; it demonstrates a good level of competence and independent thought.

(e) Marks ≥ 70%: The quality of the work is outstanding with no significant flaws. It demonstrates a very high level of competence and depth. The submission is very well written and presented, demonstrating an excellent understanding of the subject with a thorough and well-reasoned evaluation and critique of independent research.

## Extenuating Circumstances:

There may be a time during this module where you experience a serious situation which has a significant impact on your ability to complete the assessments. The definition of these can be found in the University Policy on Extenuating Circumstances here [https://www.plymouth.ac.uk/uploads/production/document/path/15/15317/Extenuatin g\_Circumst ances\_Policy\_and\_Procedures.pdf](https://www.plymouth.ac.uk/uploads/production/document/path/15/15317/Extenuatin%20g_Circumst%20ances_Policy_and_Procedures.pdf)

## Feedback:

Feedback opportunities are embedded within the module. Students should seek feedback during the timetabled seminar sessions. In the past students who have not used the opportunities for feedback described above have tended to receive the lower grades. Please use the opportunities provided.

Marks will be released on the DLE within 20 working days of submission.

## Referencing:

The University of Plymouth Library has produced an online support referencing guide which is available here: <http://plymouth.libguides.com/referencing>

Another recommended referencing resource is Cite Them Right Online; this is an online resource which provides you with specific guidance about how to reference lots of different types of materials.

The Learn Higher Network has also provided a number of documents to support students with referencing: References and Bibliographies Booklet: <http://www.learnhigher.ac.uk/writing-foruniversity/referencing/references-andbibliographiesbooklet/>

Checking your assignments’ references: <http://www.learnhigher.ac.uk/writing-foruniversity/academic-writing/checkingyourassigments-references/>

# Assessment Offences:

For this assignment you may be using information from differing sources:

* Books, journal articles
* Course/module materials
* Websites

It is ***very*** ***important*** for you to note that this assignment is a ***group effort.*** *It* ***should clearly state the contribution of each team member or state that each member contributed equally. It should only contain contributions from*** *the students submitting this assignment and not contain content by other students.*

Thus, do not simply copy existing sources, i.e. other students work, interspersed with a few words of your own. This is paraphrasing, and it is not encouraged, it is not likely to get you a good mark and in some cases it could be seen as plagiarism. In a similar vein, do not simply copy material from elsewhere without citing it properly.

Thus if you:

1. Use text verbatim, i.e. word-for-word.
2. Copy and / or amend figures / diagrams.

Then material used this way must be referenced: The text **must** be in quotes and referenced, and source of the figure/diagram **must** be placed under the figure/ diagram.

For more **information** on how to write texts, reference source material and plagiarism in general, see: <https://www.plymouth.ac.uk/student-life/your-studies/essential-information/regulations/plagiarism>

If you have any doubt as to what constitutes ‘***an individual effort and in your own words’*** then either see your student handbook or see me.

**The University treats plagiarism very seriously and you are advised to read the relevant sections in your student handbook.**