

Project Proposal

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Changemakers: Creativity and Value Creation

ACCA5033

Task 1 - Ideation & Mind map

Task 2 - Aim & Objectives and Research Area

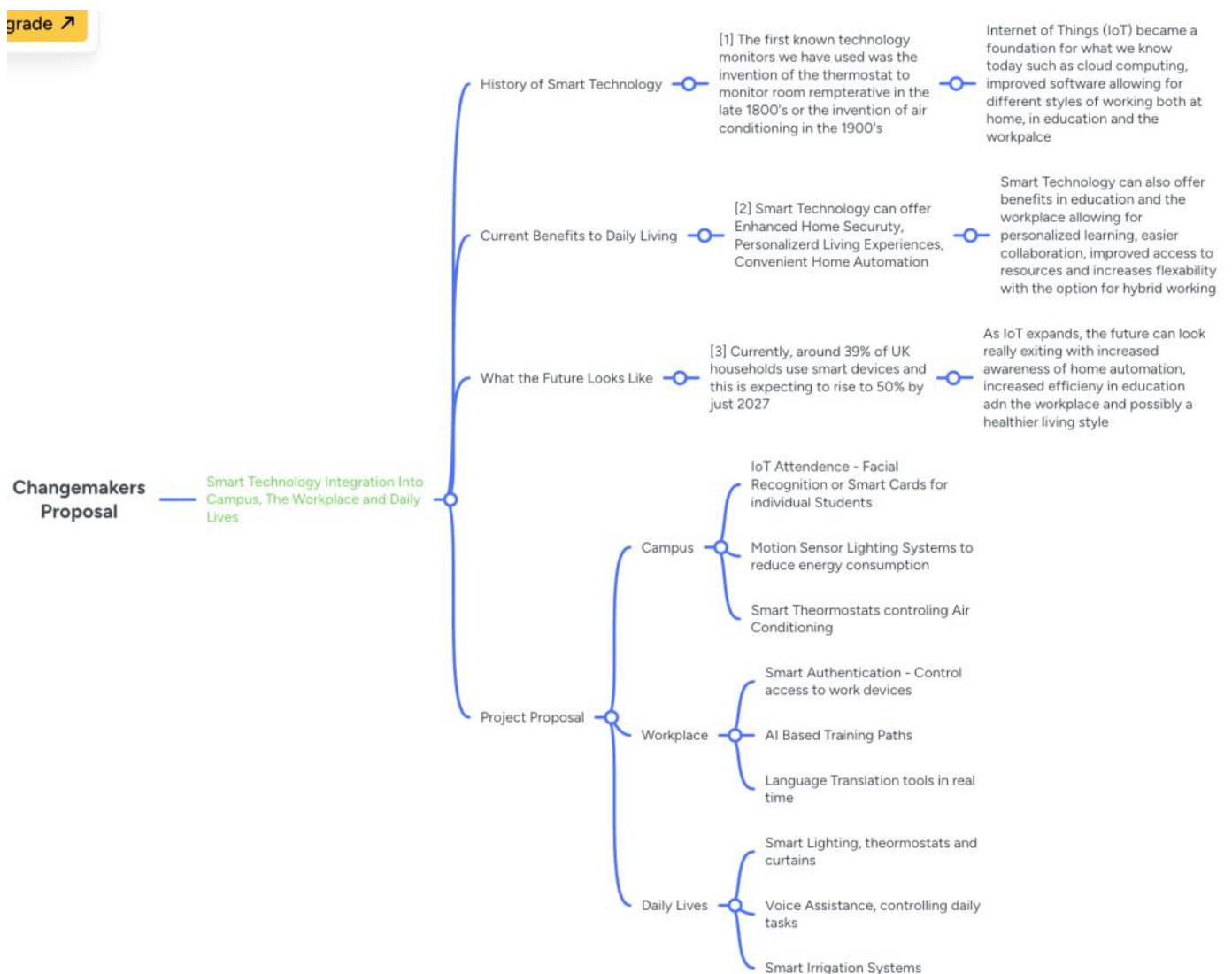
Task 3 - Research Strategies

Task 1 - Ideation & Mind Map

Tuesday 3 June 2025 12:20

My project proposal is Smart Technology Integrated into our university campus. This proposal explored the potential of implementing smart technology and Internet of Things across key areas of university campus life. This can range from Smart Attendance Tracking, Smart Lighting and heating control to ensure resources are used efficiently and effectively.

I have created a mind map which can be seen below including research about the history of smart technology, benefits of using it and what the future looks like. I have also devised some ideas of how it could be used around campus to improve lectures and student satisfaction. By embracing these advancements, universities can not only boost performance but also prepare students for the future as smart technology continues to advance day by day.



[1] <https://wiredscore.com/blog/2023/03/15/smart-technology-history/>

[2] <https://tempest.earth/resources/advantages-of-smart-home/>

[3] <https://ecelectronics.com/news/the-future-of-smart-home-technology-in-the-uk>



References

Task 2 - Aim & Objectives and Research Areas

Tuesday 3 June 2025 12:21

Aims and Objectives

Smart Technology and Internet of Things Devices Integrated into University Campus Life

Aim

To enhance the quality, efficiency and sustainability of our university campus through strategic integration of smart technologies

Objectives

1. To enhance energy efficient and sustainable devices such as smart lighting, air conditioning and air quality control
2. To streamline student attendance reporting by integrating smart ID cards utilised by lecturers
3. To evaluate the effectiveness of smart technologies through feedback and performance of students
4. To improve lecture delivery through AI enabled content recording, real time transcription and note taking tools

In summary, these aims and objectives will help improve both student and lecture experiences, by increasing the efficiency of lectures, improve student quality of life and help the university become more sustainable due to the use of smart technology allowing for lighting, air conditioning and air quality to be controlled more efficiently.

Research Philosophy

After completion of Unit 1 Topic 2 – How do YOU solve a problem? on Moodle, I have identified two possibly research philosophies I could utilise. As I have always liked to prove issues and problems by using a scientific approach, such as using facts and conducting primary research, I have come to the conclusion that both Positivism and Critical Realism could suit my needs.

Positivism

Positivism is a research philosophy that assumes reality is objective and can be measured and observed through evidence such as data and facts [1]. This research philosophy provides hard evidence that I believe no one can ignore. It has been criticised for over simplifying things however, this is sometimes the best way to see things, as it strips everything down to analyse and come to a conclusion.

Critical Realism

Critical Realism is the idea that the real world exists but we don't always see or understand everything about it, we only see what is apart of our picture. There are often deeper things that happen that affect reality that we cannot see ourselves but they still influence everything we do [2]. Researchers use this philosophy to look for these hidden causes that affect us which helps them gain a better understanding in complex situations.

Search Tools

To identify relevant research for my project 'Smart Technology and Internet of Things Devices Integrated into University Campus Life, I have researched, selected and documented approached search tools and research databases. After some research on the internet and after completion of *Unit 1 Topic 3* on Moodle, I have come to know different research databases that can be used as the only one I heard of before was *Google Scholar*. This includes research, viewed and validated by many people in technology engineering and applied sciences. It allows me to conduct valid and relevant research leading back to IEEE referencing.

Using these tools, I applied research strategies taken from the Moodle unit to find relevant academic articles and case studies. I learned that using keywords is extremely important as it allows you to find exactly what I am looking for. I found some interesting documents and studies after searching 'Internet of Things and Education' which gave me an insight into the benefits of smart technology in education [3]. The other keywords that I inputted were as follows, 'Internet of Things and Higher Education' Smart Technologies in University' and 'Smart Campus'.

This process helped me gather high quality and up to date research that supports my project by allowing me to develop ideas and gain extra knowledge from others. Some articles that I have viewed have provided me with insights on how IoT can improve energy efficiency and student experience on campus while also allowing for lectures to have more time, further boosting student performance.

Reference List

[1] M. Crotty, *The Foundations of Social Research: Meaning and Perspective in the Research Process*.

London: SAGE Publications, 1998.

[2] R. Bhaskar, *A Realist Theory of Science*. London: Routledge, 2008.

[3] M.Kossab, *A systematic literature review on IoT in Education: Benefits and Challenges*, 2019

Task 3 - Research Strategies

Tuesday 3 June 2025 12:21

When conducting research on Smart Technology and IoT devices integrated into our university campus, it is essential to ensure that my findings are accurate, up to date, valid, ethically correct and collected in the right ways and trustworthy. The research conducted must consider all of these points to ensure the overall quality of my work is to the best of my ability and all sources collected are relevant to my current studies.

Validity

To enhance validity, I will ensure all research conducted and methods used are measured against my aims and objectives to my current project proposal, such as improving energy efficiency, lecture delivery and student satisfaction. Well-structured surveys, and possible interviews could be used to gather this data, both designed to collect relevant and meaningful data. Testing may also be necessary to implement possible changes to ensure they stay valid to my project.

Reliability

Linking to validity above, questions could be designed to produce consistent results which could be repeatable. Data collection procedures will need to be the same no matter what data is being collected to ensure reliability is peaked.

Generalisability

Data will be collected from a diverse sample of participants, ensuring all views are collected and considered. Transparency of this data collected will need to be noted, as different people will have different views on the changes this project proposes. The data collected will help ensure that all findings represent a wide range of students, lectures and staff around the university, allowing for all perspectives to be applied to the proposal in place.

Ethical Considerations

Ethics are extremely important to all data collection efforts, not just for my project but for everyone across the globe. Consent from all participants in data collection will be put in place, ensuring confidentiality and anonymity are a priority. When collecting data, participants will be informed of the purpose of the data collection, explaining what the project is attempting to do and who it could possibly benefit. Participants will also have the right to withdraw from the data collection at any time.

Research Strategies and Data Collection Methods

For my project, I have selected a few research strategies that combine both qualitative and quantitative methods to gather data on the effectiveness and potential impact of Smart Technology and IoT devices within university.

Surveys

Surveys are a great way of gathering quantitative data, specifically targeting students, lectures and campus staff. The data gathered will measure their awareness, opinions and experiences of smart technology. Ultimately, surveys allow for mass data collection which can be taken and broken down into statistics.

Interviews

Structured interviews can also be conducted on a random number and selection of participants to

gain deeper insights into the pros and cons of implementing smart technology into university.

Quantitative and Qualitative Analysis

Quantitative Analysis

This type of analysis focuses on numerical data to identify relationships and trends. Statistics are considered and will be used to summarise questionnaire responses, such as percentages relating certain questions. This data can then be taken to data visualisation through graphs and charts which can be presented and easily identified to figure out what the best way to move forward is.

Qualitative Analysis

This type of analysis interprets non-numerical data which can be linked into the possible interviews and longer survey responses such as free text boxes. AI could be used to interpret these responses, picking out key words and responses and summarising large data sets into easy read suggestions.

Linked Documents for Appendices

Tuesday, July 22, 2025 2:56 PM