

Water collection and management system

by Nelson Oigbochie

Submission date: 25-Apr-2023 04:40PM (UTC+0100)

Submission ID: 203390056

File name: 36393_Nelson_Oigbochie_Water_collection_and_management_system_494134_1551636853.pptx (2.38M)

Word count: 1743

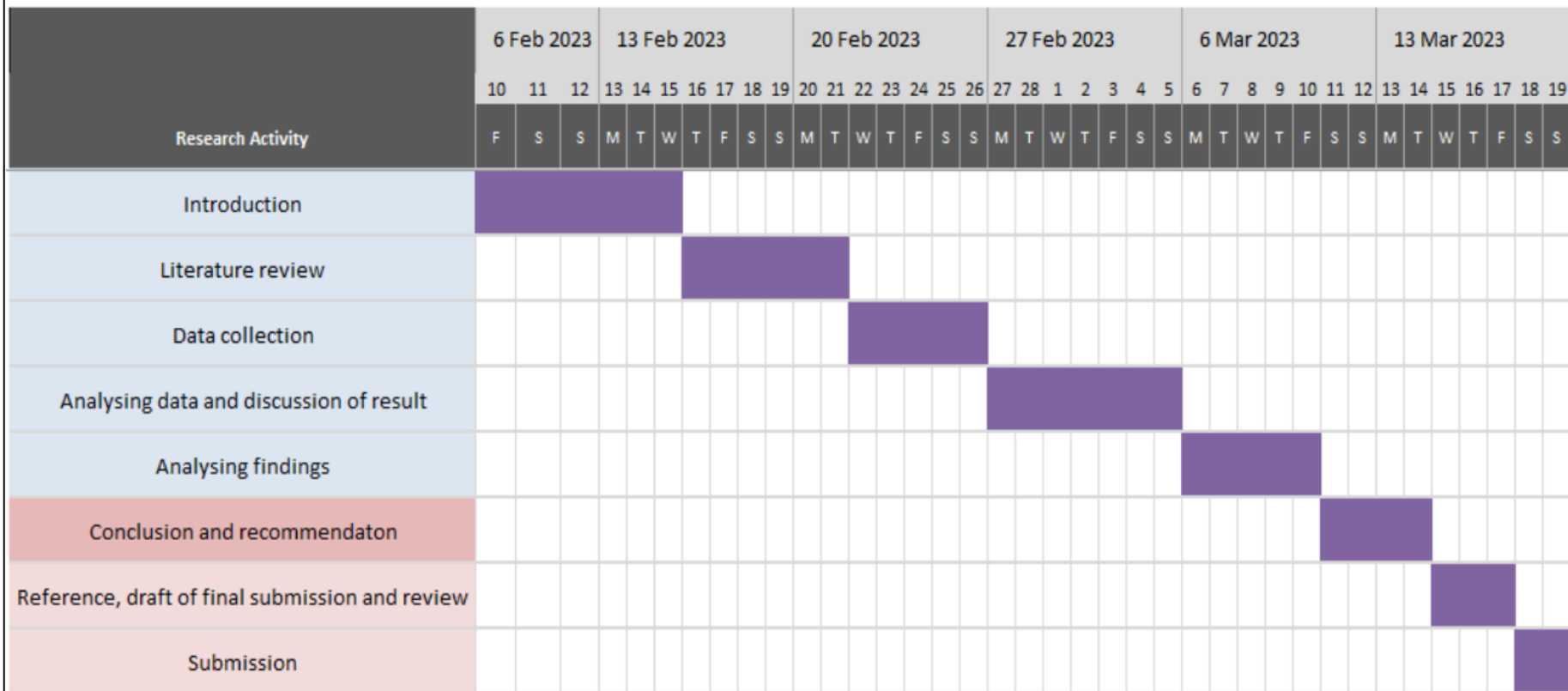
Character count: 9348

Water Collection and Management System using Smart Home Technology

Nelson Oigbochie

25th/27th April, 2023

Integrated Projects – ACHA 4008
SKCOCH/SKDICH/SKENCH/SKELCH



Gantt Chart



Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

200
1822 - 2022

Chapter One

Introduction

- Smart home technology used in the management of water collection has been one of the innovations that have changed the narrative in the technological industry, especially in Europe and most developed economies
- According to a report by European Commission (1), special attention has been given to the strategic energy technological plan aimed at creating technologies and services for smart home as it has to do with the management of water collection to provide smart solution to energy consumers.
- This strategic plan has been projected to put in place a visionary action plan for electricity market and management of water collection in European countries aimed at delivering a new deal for consumers of smart homes, data management and protection.
- Lewis (2) and Firth et al. (3) are of the view that the policy of engaging in smart homes aimed at enabling technologies to be able to meet up with the latent demands of households for energy control and water management have become very pertinent and important.
- Therefore, smart homes are seen as an integral part of a future energy efficient system projected to reduce the overall demands as well as helping to solve the constrains period of peak load in water management.

Statement of the problem

- Water collection and management have been one of the most troubling issues that arouse the attention of researchers and scientists into trying to look for lasting solution to this challenge.
- And this gave rise to the innovation and invention of smart home technologies that came to light in early 1990s in Europe and some other technological advanced countries.
- Even though this seems to have become the answer to proper water collection and management in the society, it also has its attendant risks to its users which have questioned the technology's harmfulness to its users, but unfortunately, this has not been properly addressed till date.

Objectives of the study

The main objective of the study is to properly address the issue of adopting smart home technology in proper water collection and management system in the society. Other objectives are:

- To ascertain benefits and risk of prospective users of smart home technologies in water collection and management.
- To ascertain how the perception early adoption of smart home technologies have been distinctive
- To find out how the industry market of smart home technologies have been able to align with the perception of prospective users as it concerns proper water collection and management system.

Chapter Two

Review of Related Literature

Early Adoption of Smart Home Technology in Water Collection and Management

- Research has shown that the early adoption of smart home technology in proper water collection and management have been perceived to have its attendant benefits and risks to its users (6).
- According to Mann-Whitney (7), in his research study noted that early users of smart home technologies in water collection and management have argued that the technology have been more beneficial for their use, irrespective of its attendant risks which are usually caused where the users fails to adhere to the terms and conditions stipulated in its usage.

Benefits and Risks of Smart Home Technology in Water Collection and Management

- Strengers (8) have argued that prospective users of smart home technology in water collection and management have aligned their faith in the multiple functionality of managing the use of energy
- control of domestic environment and improving in security within their homes because of the efficiency of the device.
- For Koomey et al. (9), they have argued that the positive or negative impact of smart home technologies have remained unclear and less explained for its users, which has become a risk factor in itself.

Chapter Three

Design and Implementation

Survey Design

- This research will be adopting a combination of qualitative and quantitative research survey design wherein expert opinions and scholarly views will be reviewed, and government policy documents will also be analyzed on water collection and management system using smart home technology
- This approach was taken with the cognizance of the questions put in place to guide the issue of water collection and management using smart home technology in the chosen survey area as to proper guide the survey method adopted for this research
- A ten year policy document of government will be taken into consideration with the view of looking at the future as to enable exploration of possible different types of benefits that may arise in the application of water collection and management in the study area.

Research Approach

- The study will be adopting a hypothetical narrative approach on the multiple potential future on water collection and management using smart home technology, and this will only be possible depending on the decision that are made by policy makers at critical junctures
- The policy of decision makers on this is aimed at raise critical questions across the connection of social, environmental and institutional system.

Chapter Four

Presentation and Analysis of Results

Data Presentation

- Data collated from policy documents and scholar literatures will be used to guide the presentation of the study.
- These views and policy documents will be used to analyze the variable - water collection and management system using smart home technology.
- The data gathered will be synchronized during analysis as it deals mainly on important documentaries that will be adopted in the cause of the study.

Data Analysis and Results

- In most developing economies, unlike in Europe, the issue of water collection and management has become a major challenge
- Water shortage is one major challenge the state have been combating over the years (10).
- Water desalination, water distribution, and water treatment have received significant attention, but the problem has remained in place (11).
- The desalinated water pipelines that run through urban metropolitan cities have not been enough to attend to the challenges of water collection and management, hence the importance of adopting smart home technology in the collection and management of water distribution
- Consumers are made to get water supply at great cost, but despite this, the quality of water supply has remained very low (12).

- Different diagrams will be displayed in the appendices where the use of smart home technology
- Such as IoT, using hybrid application of IoT device to make up the hybrid system and this device helps to measure water tank height, and sends real time information to the cloud through the use of smart technological device.
- The use of the GSM device in the application of smart home technology sends a signal to another device – a motor controlled device, which activates and deactivates the motor signal automatically
- And with the use of this technology, taking care of any possible leakage in the measurement of the hybrid application would have been properly taken care of.
- All the device needs is a constant data connection to monitor the real time connection between the devices (13).

Chapter Five

Conclusion and Recommendations

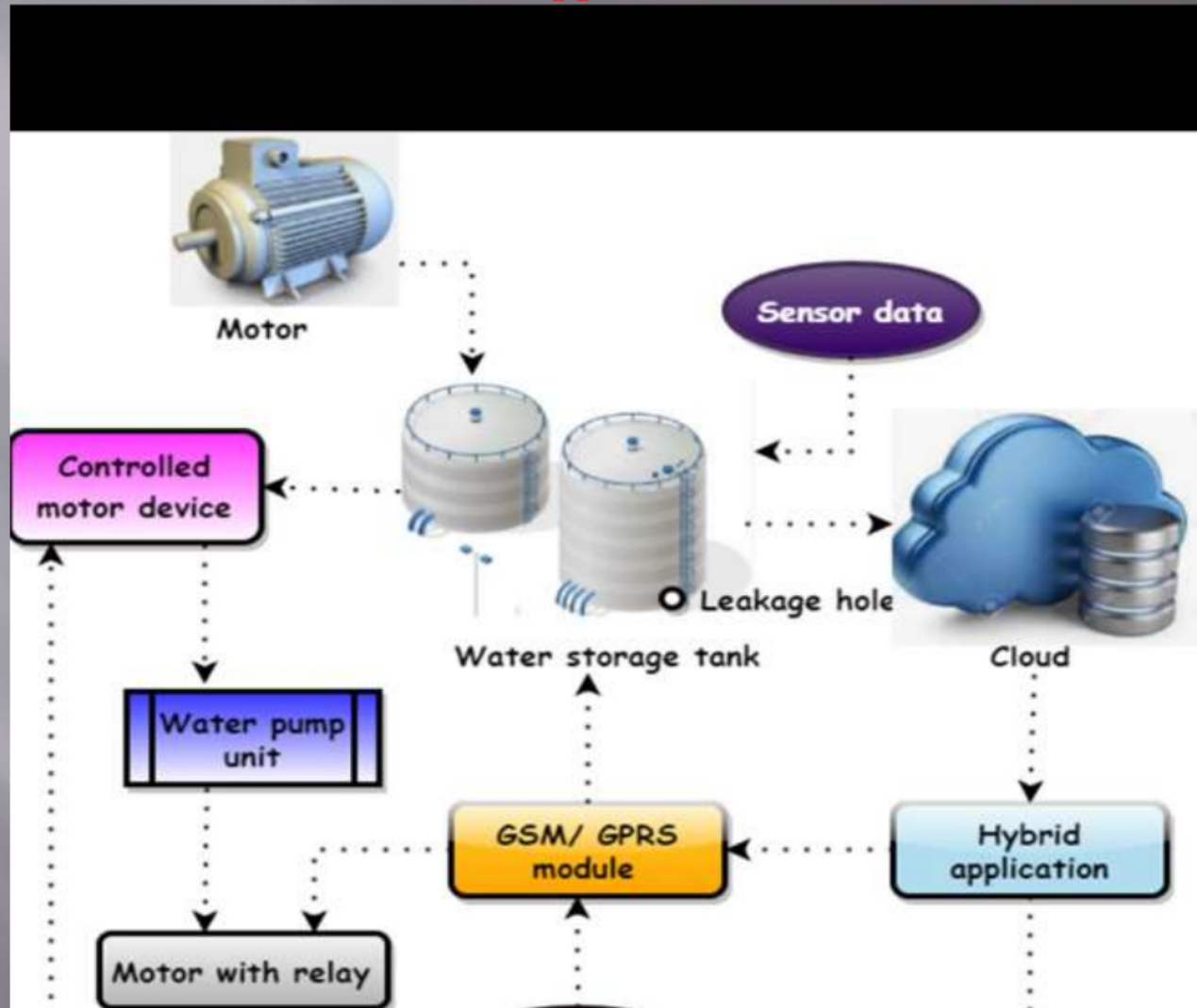
- The study was able to examine the risk and prospect of using smart home technology in water collection and management using the IoT new innovation in the management of water collection and distribution in the case study area
- . The technology was able to ascertain the perception of early adoption of smart home technology for both commercial and private usage in homes and commercial centres with government intervention and adequate policies from policy makers in government.
- The scholarly views aligned with how the industry market of smart home technology have been able to properly address the issue of proper water collection and management system in the study area. The study therefore recommended that:
 - There should be a novel architecture with a view of achieving low cost and flexibility in the use of smart home technology in water collection and management, with emphasis on developing economies (14)
 - Additional innovation should be added to the smart home technology for proper and efficient water collection and management as to attend to the issue of poor network connection, high data consumption, and low risk for its users, this is necessary for low income earners and developing economies (15)

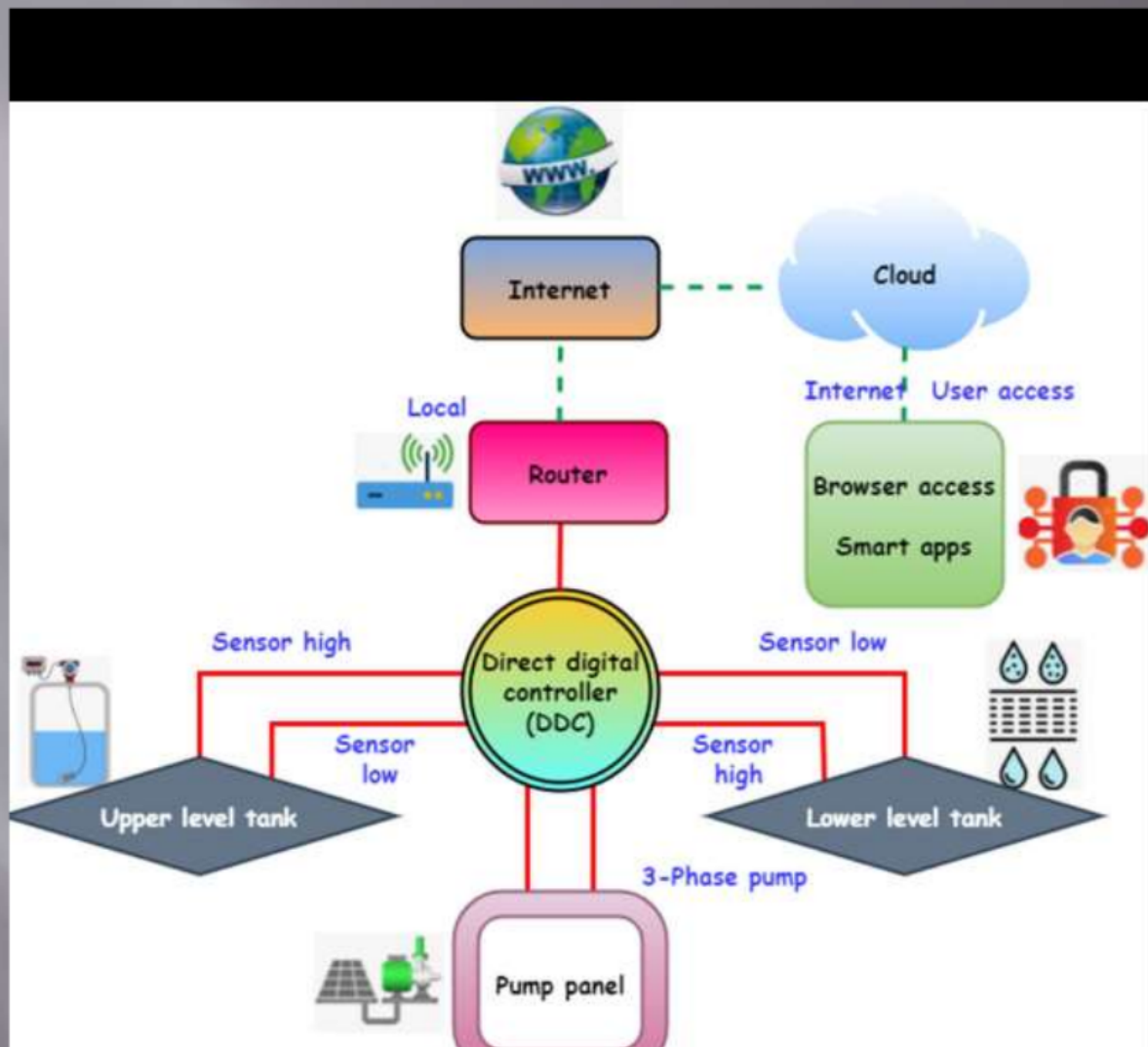
References

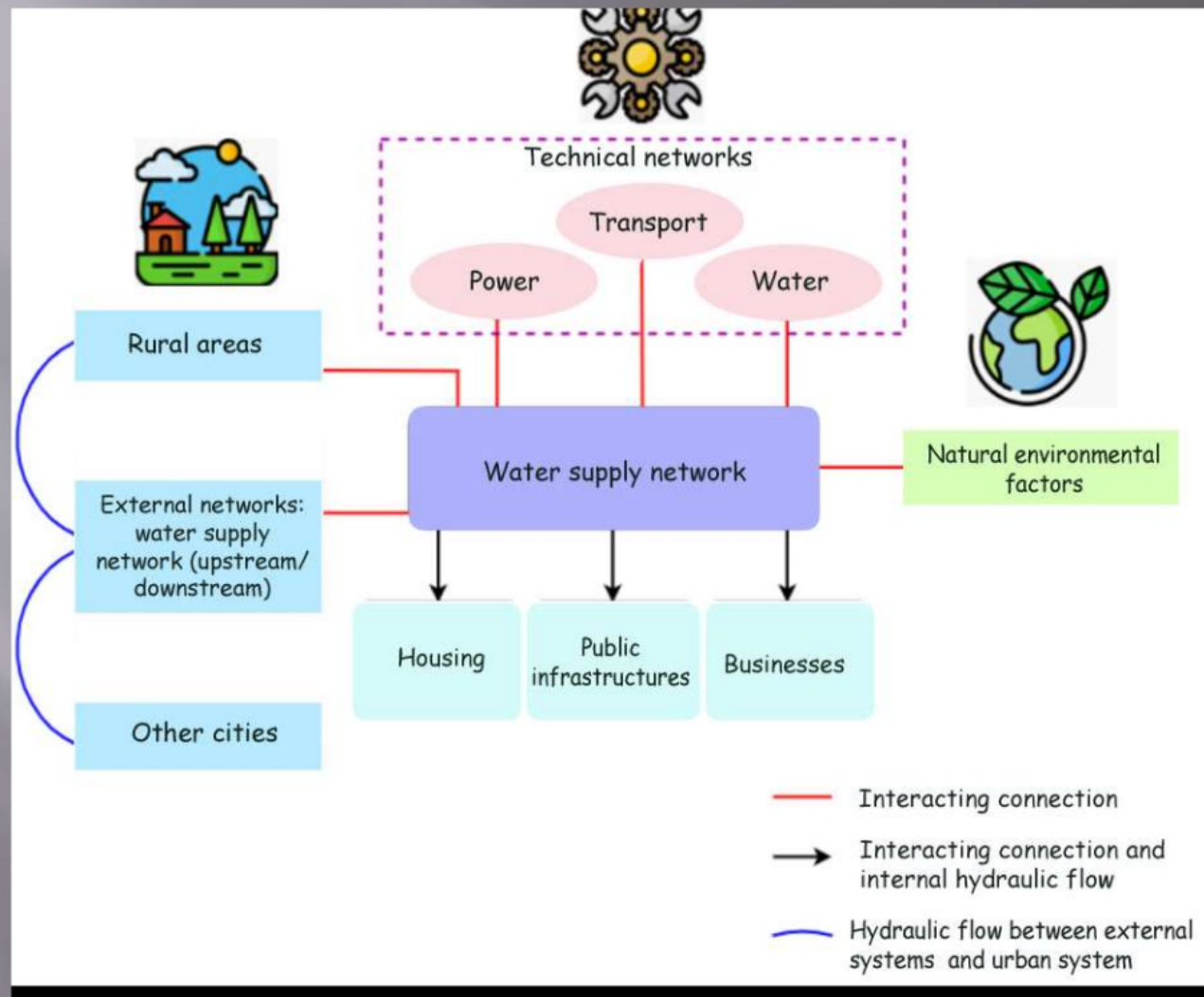
1. European Commission (EC), Towards an Integrated Strategic Energy Technology (SET) Plan: Accelerating the European Energy System Transformation. European Commission, Brussels, Belgium, (EC); 2015
2. S.C.R. Lewis. Energy in the Smart Home. The Connected Home: The Future of Domestic Life. In: Harper R. (ed.), Springer-Verlag, London, UK, (2012) pp. 281–300.
3. S.K. Firth; F. Fouchal, T. Kane, V. Dimitriou, and T. Hassan. Decision support systems for domestic retrofit provision using smart home data streams. In: Proceedings of the 30th International Conference on Applications of IT in the AEC Industry. Move Towards Smart Buildings: Infrastructures and Cities., Beijing, China (2013).
4. N. Balta-Ozkan, B. Boteler, and O. Amerighi. European smart home market development: public views on technical and economic aspects across the United Kingdom, Germany and Italy. *Energy Res. Soc. Sci.* 3, (2014) 65–77.
5. E. Harms. Smart home – good things come to those who wait. In: Proceedings of the 8th International Conference on Energy Efficiency in Domestic Appliances and Lighting (EEDAL'15). Luzern, Switzerland (2015).
6. F.K. Aldrich. Smart Homes: Past, Present and Future. Inside the Smart Home. In: Harper, R. (ed.). Springer-Verlag, London, (2003) pp. 17–39.
7. A. Mann-Whitney. Smart homes as a means to sustainable energy consumption: a study of consumer perceptions. *J. Consum. Policy* 35, (2012) 23–41.
8. Y. Strengers. Smart Energy Technologies in Everyday Life: Smart Utopia?. Palgrave Macmillan, Basingstoke (2013).
9. J.G. Koomey, H. Scott-Matthews and E. Williams. Smart everything: will intelligent systems reduce resource use? *Annu. Rev. Environ. Resour.* 38 (1), (2013) 311–343.
10. F. Gangale, A. Mengolini, and I. Onyeji. Consumer engagement: an insight from smart grid projects in Europe. *Energy Policy* 60, (2013) 621–628.

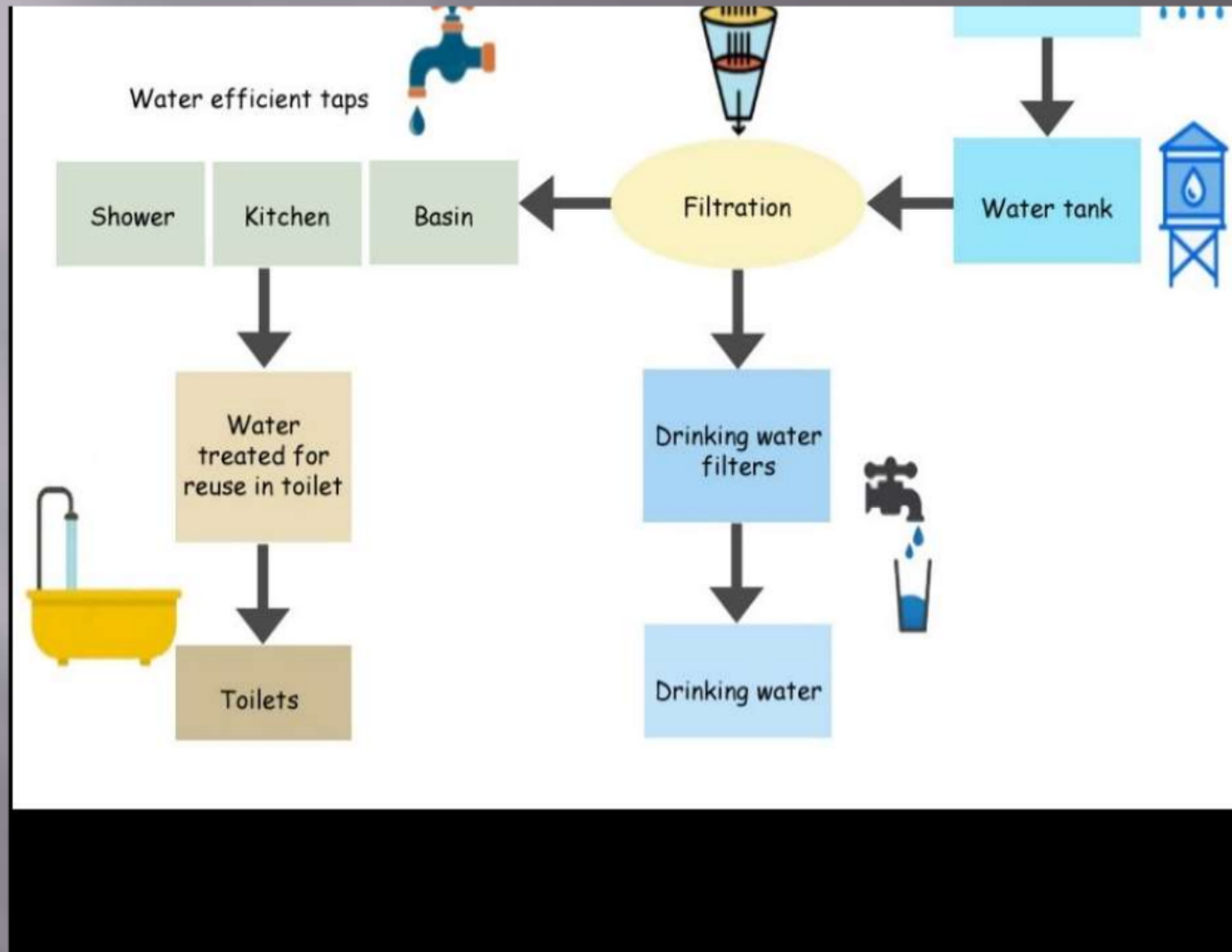
11. D. J. Cook. How smart is your home? *Science* 335 (6076), (2012) 1579–1581.
12. R.J. Robles and T. Kim. Applications, systems and methods in smart home technology: a review. *Int. J. Adv. Sci. Technol.* 15, (2010) 37–48.
13. R. AlGhamdi, R. and S.K. Sharma. IoT-Based SmartWater Management Systems for Residential Buildings in Saudi Arabia. *Processes* (2022), 10, 2462.
14. H. Padilla-Díaz. Comparing technological hype cycles: towards theory. *Technol. Forecast. Soc. Change* 80 (8), (2021) 1615–1628.
15. C. De Wet. Smart homes and their users: asystematic analysis and key challenges. *Pers. Ubiquitous Comput.* 19 (2), (2021) 463–476.

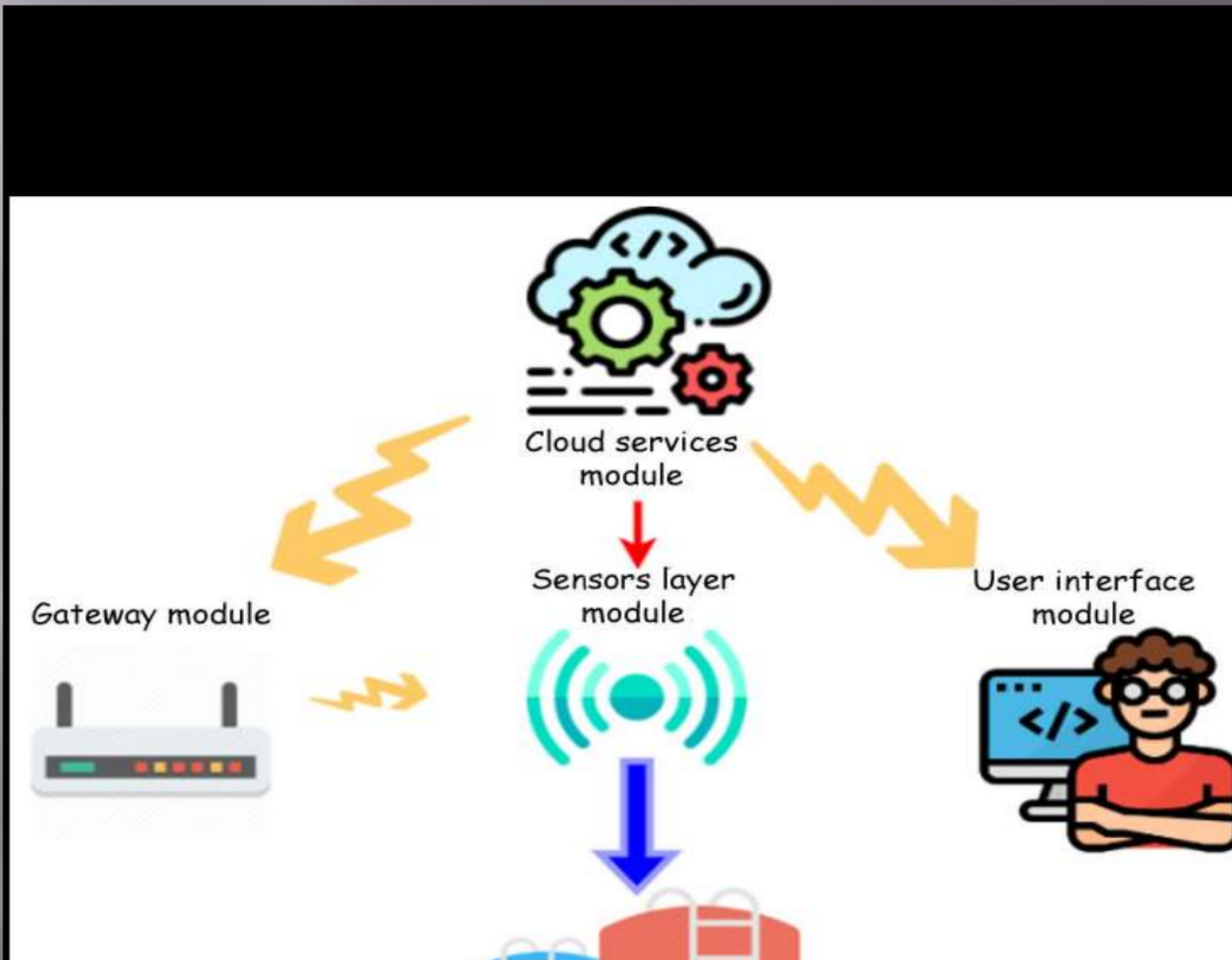
Appendices











Water collection and management system

GRADEMARK REPORT

FINAL GRADE

67 / 100

GENERAL COMMENTS

Instructor

A good title slide showing the topic, name, date of presentation, and module name. There are four different courses mentioned and it is not clear which course is the relevant one?

Gantt chart with all the different project stages is highlighted here.

Background and importance of the topic highlighted; problem statement defined; aim and objectives declared, and useful literature cited in this context to set the scene.

A comprehensive and relevant literature cited from a range of resources. That is very good foundation for a research-based literature review. However, there is not enough evidence for the critical evaluation of the literature cited.

Also, no graph, table, or data visible in the presentation. These are weakness of the literature review and is advised to consider implementing these tips in the future coursework.

On the other hand, the literature is appropriately cited within the text and the list of the literature consulted is provided at the end of the presentation. A few flow charts and system diagrams are presented in the appendix which highlights the working principle of various smart technologies mentioned in the presentation. These are very useful in this context.

Confident while answering the questions and satisfactory answers were provided.

Good layout of the presentation, and the use of animations. Eye contact maintained during the presentation. A good use of language, correct grammar and fluency is demonstrated which is very good quality.

PAGE 1

PAGE 2

PAGE 3

PAGE 4

PAGE 5

PAGE 6

PAGE 7

PAGE 8

PAGE 9

PAGE 10

PAGE 11

PAGE 12

PAGE 13

PAGE 14

PAGE 15

PAGE 16
