Module code: **CT120-3-2-LPAN**

Assignment Title: **IoT (Internet of Things) Project**

Total marks: **Individual Assessment (50%) + Presentation (10%)**

Module Learning Outcome and Program Outcome

Learning Outcomes

In conclusion, students should be able to:

CLO2: Justify and apply appropriate communication technologies based on specific requirements of different scenarios.(C3, PLO2)

CLO3: Explain wireless sensor networks in the context of IoT design solutions. (A3,PLO6)

Internet of Things (IoT): Overview and Project Guidelines

The Internet of Things (IoT) is an innovative technology designed to simplify and enhance our lives. Over the past decade, the exponential growth in Internet users has made the Internet indispensable, with IoT emerging as a transformative advancement in this space. IoT leverages global connectivity to enable seamless interaction and control over Internet-enabled devices, creating a vast network linking devices, people, and processes. This technology has immense potential to drive remarkable projects, enabling the control of electronic devices in homes and industries alike.

IoT Architecture and Functionality

IoT applications can be categorized into multiple levels based on the use of end nodes, cloud capabilities, and analytical functionalities. Data generated by IoT devices is typically stored in the cloud, which serves as the foundation for application operations. Cloud-based observer nodes receive and analyze this data, which can then trigger control actions via web or mobile applications.

As part of this assessment, you are required to develop an IoT project that involves real-time data streaming. The received data should be analyzed and stored in either the cloud or a local system. Control actions must be executable through a web or mobile application.

Core Components of IoT

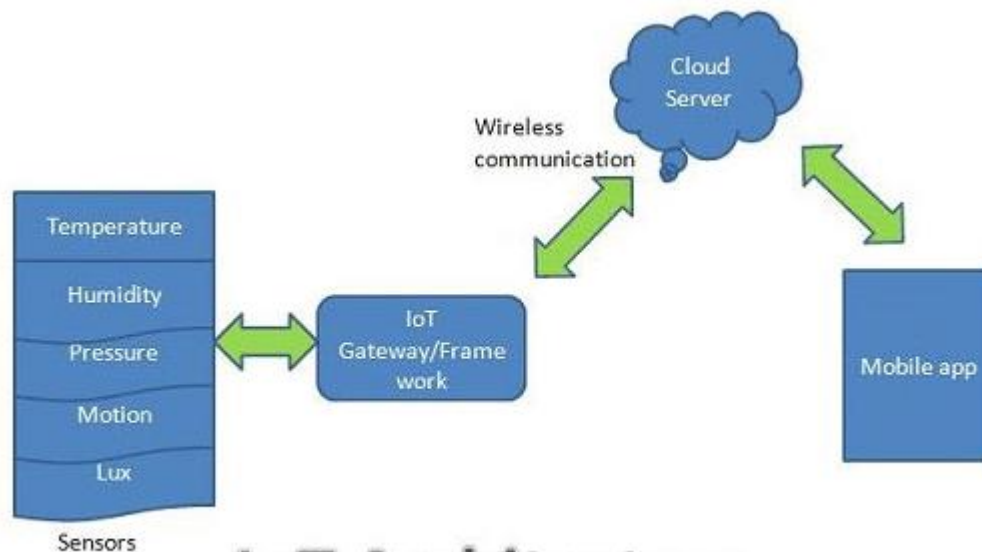IoT comprises **three** fundamental components:

Sensors and Actuators

Sensors detect and measure physical quantities such as temperature, sound, humidity, or vibrations, converting these into electrical signals. These signals are then processed and acted upon by the system.

Connectivity

The processed signals are transmitted over a network using various communication technologies, including Wi-Fi, Bluetooth, BLE, infrared, and RFID.

People and Processes

People and processes are integral to IoT systems. Networked inputs are combined into a bidirectional framework that integrates data, users, and processes, enabling informed decision-making. The results are accessible via mobile or web applications.

Project Title and Requirements

While you have the flexibility to determine the project title, it must be discussed and approved by your lecturer to ensure it meets the required complexity level.

Documentation Guidelines

    a. The project report should not exceed 30 pages, including coding and screenshots.

    b. Use Times New Roman font with a size of 12pt for all text.

    c. The report must be typed and uploaded in Moodle.

    d. Include the full source code within the report.

    e. Submit the project report in soft copy format along with a short video presentation of your project.

By adhering to these guidelines, your project will demonstrate a comprehensive understanding of IoT principles and their practical application.**APU Assignment Cover Page**

Report Preparation Guidelines

All reports must include a professionally designed front cover containing the following information:

- Module Name
- Project Title
- Intake
- Student's Name and ID
- Date Assigned (the date the report was distributed [DDth MM 2025])
- Date Completed (the due date for submission [DDth MM 2025])

Report Content Structure

Table of Contents Include Table of Figures

The table of contents should clearly list all section headers along with their corresponding page numbers for easy navigation.

Introduction

This section should provide a concise overview of the project, including:

- A brief description of the system
- Background and context of the project
- Objectives to be achieved
- Scope of the system
- Key functionalities to be implemented

Details of Software and Hardware Components

Provide a comprehensive list and description of the software and hardware components required to establish the IoT communication model. Include details about their specifications and characteristics.

References (8-12)

All references must be cited using the APA style. For examples and guidelines, refer to the APU Library website or other credible resources on APA citation standards.

By adhering to these guidelines, your report will meet the expected professional and academic standards.

Assignment (Total 100 marks)

CLO2: Justify and apply appropriate communication technologies based on specific requirements of different scenarios.(C3, PLO2) CLO3: Explain wireless sensor networks in the context of IoT design solutions. (A3,PLO6)		
1	Introduction	20%
2	Implementation (Practical procedure)	40%
3	Documentation and Conclusion	20%
4	Presentation	20%
	Total	100

Marks Breakdown

Distinction	A+: 80% +	A: 75-79%	
Credit	B+: 70 – 74%	B: 65 – 69%	
Pass	C+: 60 – 64%	C: 55 – 59 %	C-: 50 – 54%
Marginal Fail	D: 40–49%	F+: 30-39%	
Fail	F+: 30-39%	F: 20-29%	F-: 0-19%