END SEMESTER ASSESSMENT (ESA) B.TECH.
(CSE)
IV SEMESTER

UE23CS251B – MICROPROCESSOR AND COMPUTER ARCHITECTURE LABORATORY

PROJECT REPORT

ON

DIGITAL THERMOMTER

SUBMITTED BY

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ABSTRACT OF THE PROJECT:

This project presents a **digital thermometer** that integrates **PIR (Passive Infrared), UV (Ultraviolet), and LM35 temperature sensors** with an **Arduino board** to measure and monitor environmental conditions.

- The **LM35 sensor** is used for accurate temperature measurement.
- The **PIR sensor** detects human presence, enabling automatic activation of temperature readings.
- UV light sensor is used to measure the intensity of ultraviolet light in the environment, which is then correlated with temperature through a calibration process to estimate and display the ambient temperature.

The system processes sensor data using the **Arduino microcontroller**, displaying real-time temperature and UV index readings on an **LCD screen** or via a connected device. The PIR sensor ensures energy efficiency by activating the system only when motion is detected.

This digital thermometer can be applied in **health monitoring, environmental studies, and smart home automation**. The integration of multiple sensors enhances its functionality, making it a versatile solution for temperature and UV monitoring.

Project Overview:

This project aims to develop a digital thermometer using an Arduino microcontroller and multiple temperature sensors to measure real-time temperature and display it on an LCD or OLED screen. The thermometer can be used for environmental monitoring, medical applications, and industrial temperature control.

Objectives:

• Measure temperature using multiple sensors.
• Display temperature readings on an LCD/OLED screen.
• Ensure real-time data updates for accurate readings.
• Develop a compact and easy-to-use device.

Components Used:

• Arduino Uno – Microcontroller for processing sensor data.
• LM35– Measures temperature.
• PIR Sensor - Detects human presence.
•UV light Sensor - measure the intensity of ultraviolet light.
• Breadboard and Jumper Wires – For circuit connections.
• Power Source (USB) – Supplies power to the circuit.

CIRCUIT DIAGRAM:

The software used for the circuit is cirkitdesigner. It is basically a online simulator software that enables users to create 3D designs and program, simulate and assemble electric circuits.