Libraries and Software's Used – Early Flood Alert System

This document lists and describes all the major Arduino IDE libraries used in developing the Early Flood Alert System by Team 12.

1. Firebase Libraries

Library: Firebase ESP32 Client by Mobizt
Purpose: Used for sending and retrieving real-time sensor data from Firebase Realtime Database.
Code Example:
#include <Firebase_ESP_Client.h>

2. DHT Sensor Library

Library: DHT sensor library by Adafruit
Purpose: Used for reading temperature and humidity data from DHT11 sensors.
Code Example:
#include <DHT.h>

3. LCD Display Library

Library: LiquidCrystal_I2C by Frank de Brabander
Purpose: Displays real-time water level, temperature, and humidity readings.
Code Example:
#include <LiquidCrystal_I2C.h>

4. Wi-Fi Connectivity Library

Library: WiFi (built-in for ESP32)
Purpose: Enables ESP32 to connect to the internet and communicate with Firebase.
Code Example:
#include <WiFi.h>

5. Time Library

Library: time.h (Built-in)
Purpose: Used for syncing time with NTP servers and generating timestamps for data logs.
Code Example:
#include <time.h>

6. Arduino Core Libraries

These are built-in and automatically included in the Arduino IDE:
#include <Arduino.h>
#include <Wire.h>
#include <SPI.h>

SOFTWARE

- ARDUINO IDE 2.3.6
- PROTEUS PROFESSIONAL 9
- VISUAL STUDIO CODE

Summary Table

Category	Library Name	Author / Source	Purpose
Cloud	Firebase ESP32 Client	Mobizt	Send/read data to/from Firebase
Sensors	DHT sensor library	Adafruit	Measure temperature & humidity
Display	LiquidCrystal_I2C	Frank de Brabander	Show data on LCD
Connectivity	WiFi	ESP32 built-in	Connect to internet
Time	time.h	Built-in	Generate timestamps
Core	Arduino, Wire, SPI	Built-in	General purpose functions