



PROJECT BRIEF TEMPLATE – SMEMCS Assignment

Project Title: Smart Monitoring and Environmental Control System

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1. Problem Statement

What real-world problem is your system addressing? Describe the issue clearly and why it matters.

- There are pollutants and issues in the home invisible to naked eye
- Some if they get dangerous need intervention this is done by monitoring air quality, temperature, light, sound providing feedback improving safety and quality of life for homeowners

2. Objectives / System Goals

List 3–5 specific, measurable goals your system aims to achieve.

- Monitor indoor environmental conditions
- Provide feedback on OLED display, buzzers, LEDs
- Actively respond based on thresholds
- Log, filter, analyze sensor data report

3. High-Level System Description

Summarize how the system will work. What will it sense? What will it do with that data?

What outputs will it have?

Measure temperature, humidity, gas CO_2 , light intensity, sound levels.
With this data it assesses air quality, pollution, environmental
comfort metrics, and noise pollution

DHT22 has digital output all others have output
via arduino analog or digital pin

4. Technologies and Components

Fill out the major hardware and software pieces involved in your system.

- Sensors: DHT22 MQ-35 LDR KY-038
- Microcontroller / Platform:
Arduino Uno ATmega328P
- Outputs: SSD1306 I2C 128x64 OLED
Piezo Buzzer
LED
DC Fan
- Power Supply:
12V → 5V system via buck converter
- Software Tools / Language:
Arduino → code
KiCad → PCB
Excel/Numbers → Data
Fusion360/OBS → Design/Recording

5. Expected Deliverables

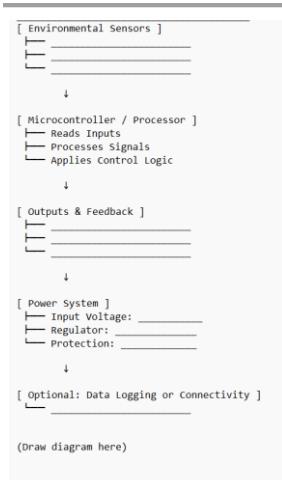
List the key files, code, documentation, and results you will turn in.

- smemcs_final.ino smemcs-calibration.ino smemcs-ul.ino threshold-testing.ino
 alert-test.ino sled-display.ino fan-pwm-control.ino smemcs-firmware.sch
 - smemcs.hi and -PCB
 - Readme, | Project Sheet | wiring map | notes | validation checklist
 - Sensor log raw vs Smooth Pulse curve graph Micro-gain filter-test.ino
 - Other tests
- demo video | final report
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🔧 BLOCK DIAGRAM TEMPLATE – SMEMCS Assignment

Draw your block diagram to show how data flows through your system. Boxes represent system components, arrows show direction of flow.

You may hand-draw or use digital tools (draw.io, Lucidchart, Fritzing, etc.)



Draw Template here

