**EEE 320 INTRODUCTION TO INTERNET OF THINGS**

**INTERM APPLICATION HOMEWORKS**

**(30P) Q1.** Perform a basic sensor application for board and sensor you have chosen, in which you will determine the scope (not exactly the same as in the lesson). One RGB or at least three LEDs should be used in your circuit.

**Purpose of Application:** You are free about the purpose of application. Clearly state the intended purpose (i.e, what you are trying to do for each situation) in your video capture and in this document.

**Circuit Diagram:** You are free to build your circuit for application. Draw your circuit in **Fritzing.**

**Simulation:** Simulate on one of the platforms: Proteus, TinkerCad or Wokwi

**Restriction:** There is no restriction. You can use any IDE and programming language you want.

**Homework Submission:** Record a videowith all the team members for your application. In your video content; explain your program codes line by line, running the simulation successfully, show your program to be compiled successfully, show your program to be loaded to your board, show your circuit to be run successfully for each case.

The following files need to be uploaded to Teams.

1. This word document by completing the ANSWERS section (DO NOT upload as pdf)
2. Your video file (MUST be talked in English)
3. Fritzing circuit file
4. Simulation project file (if proteus) or link (if TinkerCAD or Wokwi)
5. Application project folder created by IDE software. Include your source file

------------------------------------------------ANSWERS-----------------------------------------------

**Project Team :** Suat Deniz

**Board Selected :** Raspberry Pi Pico W

**Sensor Selected :** MQ-5Gas Sensor

**Your Software IDE :** Arduino Ide

**Your Programming Language :** Arduino

**Application Purpose :**

1. **Safety Enhancement:**
   * The alcohol gas detector aims to enhance safety by promptly detecting the presence of alcohol vapors in the surrounding environment.
   * It provides an early warning system to alert individuals to potential hazards associated with alcohol vapor exposure.
2. **Prevention of Alcohol-related Accidents:**
   * The application helps prevent accidents and incidents by detecting alcohol vapors in environments where their presence may pose a risk.
   * It reduces the likelihood of fires, explosions, or chemical hazards in industrial settings where alcohol vapors may be emitted during production processes.
3. **Compliance Monitoring:**
   * In regulated environments such as workplaces or transportation systems, the detector ensures compliance with safety regulations and policies regarding alcohol use.
   * It assists in enforcing safety measures and preventing unauthorized alcohol consumption in prohibited areas.
4. **Health Protection:**
   * Continuous exposure to alcohol vapors can have adverse health effects, including respiratory problems and impaired cognitive function.
   * The detector protects individuals' health by alerting them to potentially hazardous levels of alcohol vapor exposure, allowing for timely intervention and mitigation.
5. **Real-time Monitoring:**
   * The application offers real-time monitoring of alcohol vapor levels, enabling users to take immediate action in response to elevated concentrations.
   * It provides continuous surveillance of the environment to ensure safe working and living conditions.
6. **Data Logging and Analysis:**
   * The detector may include data logging capabilities to record alcohol vapor concentration trends over time.
   * This data can be analyzed to assess long-term exposure risks, identify patterns, and optimize safety protocols for enhanced protection.
7. **User Education:**
   * As an educational tool, the application raises awareness about the dangers of alcohol vapor exposure and the importance of maintaining safe environments.
   * It empowers users with knowledge to make informed decisions and take proactive measures to minimize risks to their health and safety.

**Fritzing Circuit Diagram:**

devre, elektronik mühendisliği, elektronik bileşen, devre bileşeni içeren bir resim

Açıklama otomatik olarak oluşturuldu

**Program codes:**

metin, ekran görüntüsü, yazı tipi içeren bir resim

Açıklama otomatik olarak oluşturuldu

metin, ekran görüntüsü, yazı tipi içeren bir resim

Açıklama otomatik olarak oluşturuldu

metin, ekran görüntüsü, yazı tipi, sayı, numara içeren bir resim

Açıklama otomatik olarak oluşturuldu

**Simulation (Single screenshot):**

**metin, ekran görüntüsü, yazılım, multimedya yazılımı içeren bir resim

Açıklama otomatik olarak oluşturuldu**

**Photo for your circuit (only 1 photo):**

**elektronik donanım, ekran görüntüsü, hafif, elektronik içeren bir resim

Açıklama otomatik olarak oluşturuldu**