Chemical Storage Locker

- Electronic Measurements & Sensors Project -

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Enhancing Safety and Security

specialized system → ensure the safe and secure containment of various chemicals within a controlled environment

mishandling of chemicals → serious risk to personnel/environment

=> goal: SMART and RESPONSIVE setup that

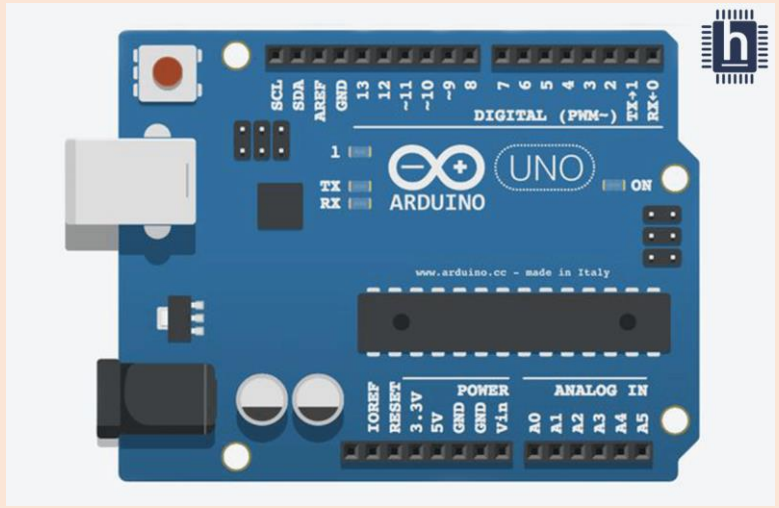
MONITORS & SAFEGUARDS

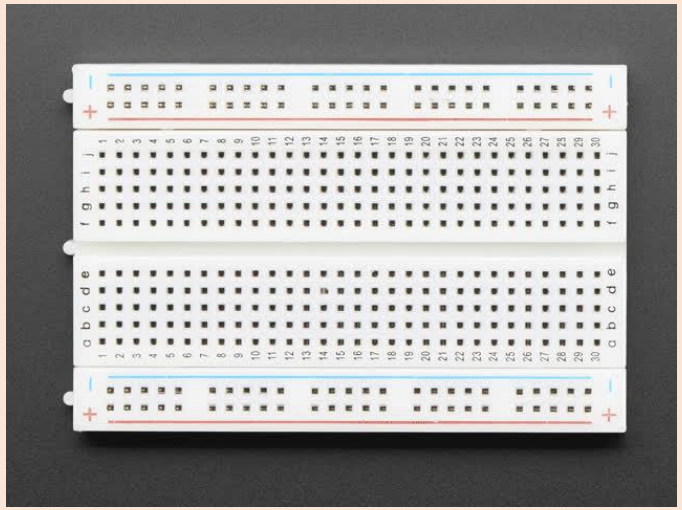
the storage environment of potentially hazardous substances

Project Overview

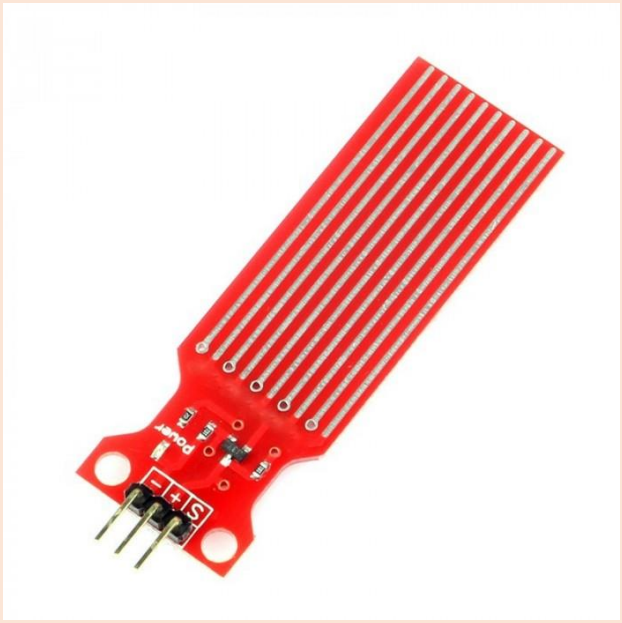
Arduino Components:

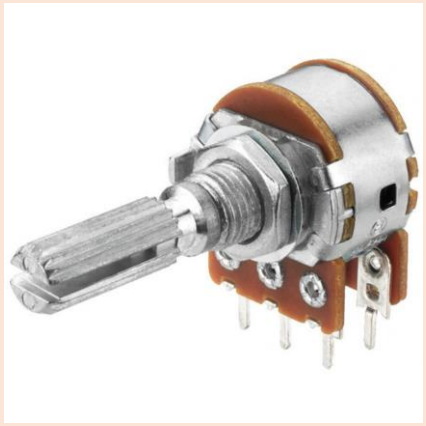
- Arduino Microcontroller
- Breadboard
- Keypad
- LCD Display
- Wires

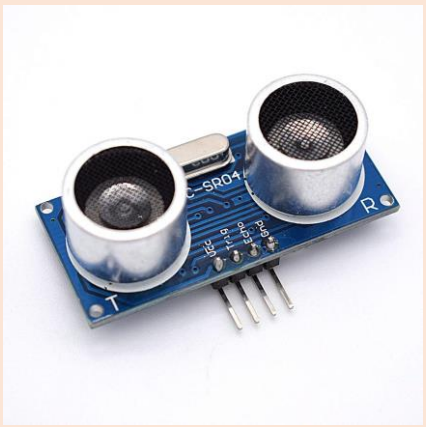


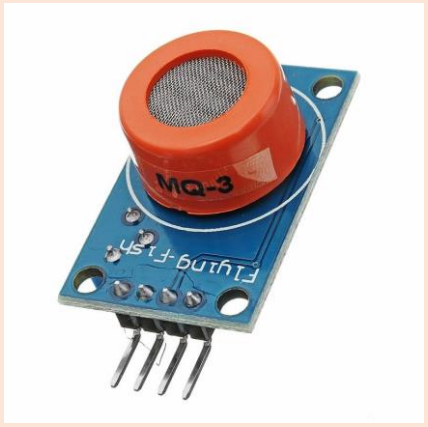


- Potentiometer
- Actuators
  - LEDs
  - Buzzer
- Sensors
  - Alcohol Gas Sensor
  - Air Quality Sensor
  - Ultrasonic Sensor
  - Water Level Sensor









Working Principle

The main component → ***LOCKER***

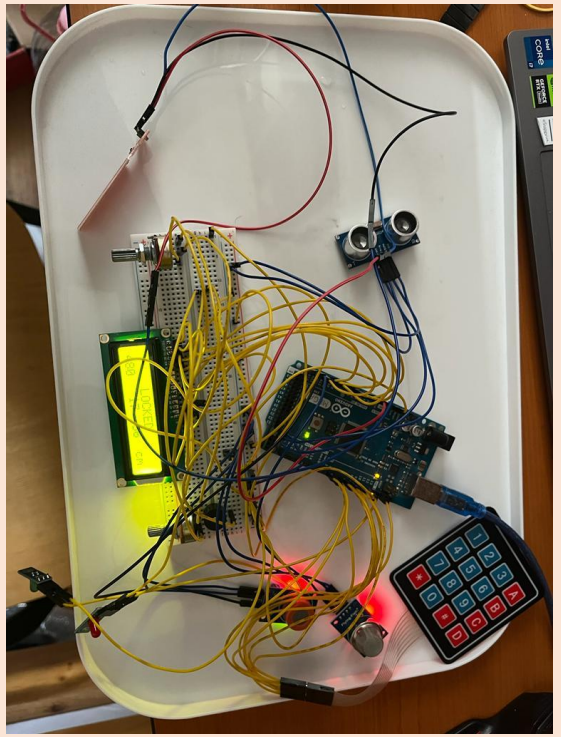
Additional component → ***SUBSTANCES LEAKAGE DETECTION SYSTEM***

- **Enter a passing code**
  - INCORRECT => the RED light is ON and the Buzzer starts, locker remains CLOSED
  - CORRECT => the GREEN light is ON, UNLOCK the storage

- **Gas Detection**
  - ALCOHOL => print the level value
  - SMOKE, AMMONIA, SULFUR, BENZEN => print the level value

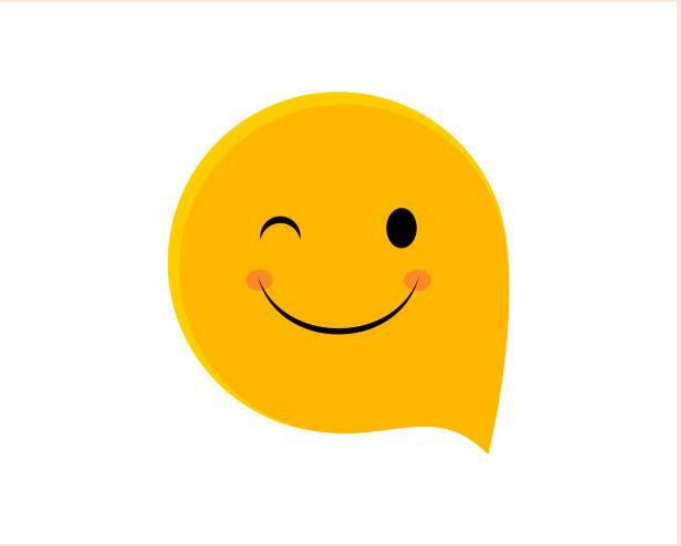
- **Water Detection**
  - The Buzzer starts & RED light is ON, LOCK the storage

- **Motion Detection**



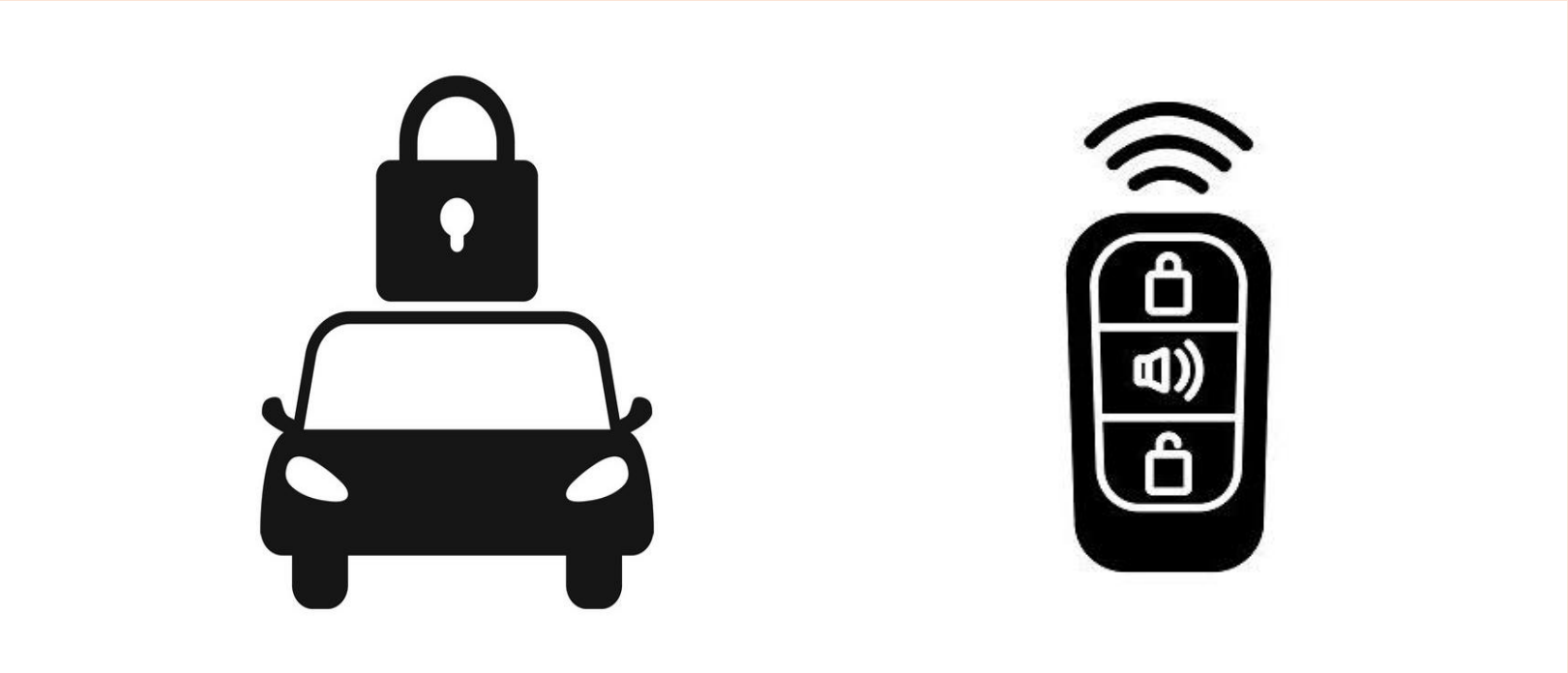
Advantages

- Prevention of Accidents
- Cost-Effective Safety Measure
- Compliance with Safety Standards
- Efficient Resource Management
- User Empowerment



Possible Developments

- The same locker and sensors could be used for a car locking system that doesn’t allow the driver to open the car if the value measured by the alcohol sensor is over a previous stated threshold.



Thank You!

"Think safety in seconds can save your whole live."