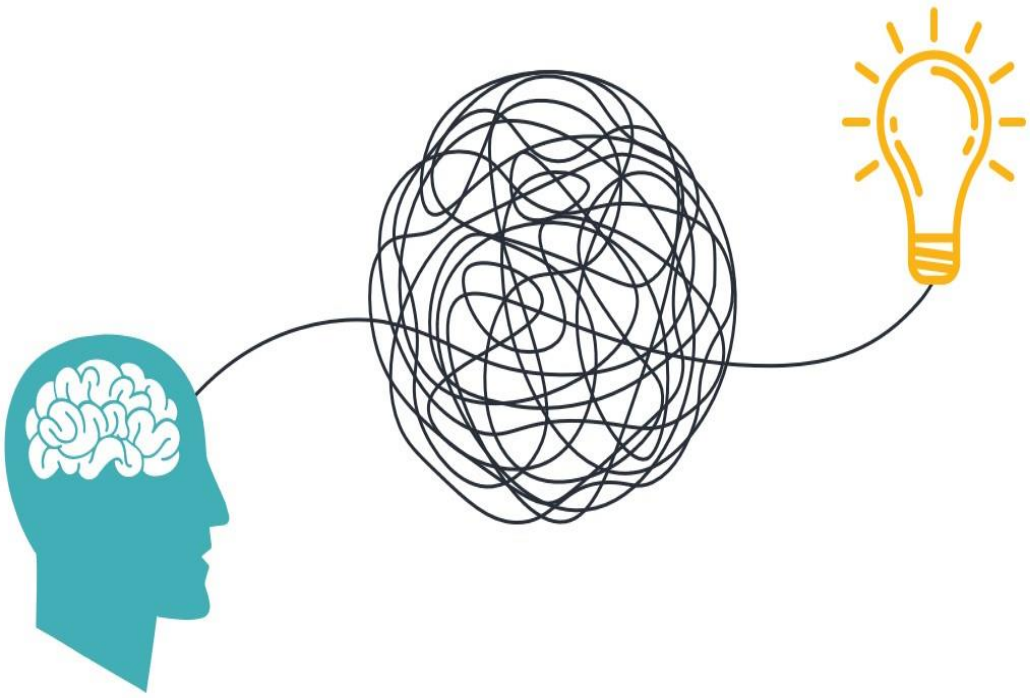
SMART BANK



Monitoring Smart Bank By Using IOT

By

Hanan Alghamdi

Maram Alshaamri

Lina Alghamdi

ABISTRACT

This project provides a monitoring and protection system for banks in order to increase the protection rate for banks and reduce the chances of theft. It also provides a fire safety system. We can also control several devises such as lighting and air conditioning. We also used solar energy to reduce electricity consumption. In this system, and more. We provide banks with the ability to monitor the bank through cameras, sensors, devices that give alarms, and others to monitor internal and external conditions, such as an attempt to enter a person who is not authorized to enter the bank, a fire inside the bank, or someone smoking inside the bank, etc.

Our professional growth has improved through this project and helped us with modern learning Such as establishing networks and linking devices with each other, as well as creating a smart project through the use of Cisco Bucket Tracer, through which we were able to control homes, banks and others through sensors and link them to smart devices such as Smart phone

Development Environment

- **Packet Tracer:** It is a cross-platform visual simulation tool designed by Cisco Systems that allows users to create network topologies and mimic modern computer networks. The software allows users to simulate the configuration of Cisco routers and switches using a simulated command line interface.
  Packet Tracer is an exciting network design, simulation and modelling tool that allows you to develop your skill set in networking, cybersecurity, and the Internet of Things (IoT). It allows you to model complex systems without the need for dedicated equipment. It is used across numerous Cisco Academy courses to help develop and assess the skill set necessary for successful completion of the course.
  With Packet Tracer you can choose to build a network from scratch, use a pre-built sample network, or complete classroom lab assignments. Packet Tracer allows you to easily explore how data traverses your network. Packet Tracer provides an easy way to design and build networks of varying sizes without expensive lab equipment. While this software is not a replacement for practicing on physical routers, switches, firewalls, and servers.

- **system basis chip (SBC)** is an integrated circuit that includes various functions of automotive electronic control units (ECU) on a single die

- **A microcontroller (MCU for microcontroller unit)** is a small computer on a single metal-oxide-semiconductor (MOS) integrated circuit (IC) chip. A microcontroller contains one or more CPUs (processor cores) along with memory and programmable input/output peripherals.

- **Home gateway**- Used for smart object registration and smart object IP address transmission

- **Temperature sensor** - Used for sensing the home temperature

- **Smoke detector**- Used for sensing the smoke level

- Smart door- our home getaway and have event-based features
- **Motion detector**- Link to the home getaway and have motion detector

- **Light**- provide light

- **Fan**- Centered on a certain state, used to ventilate the home air

- **Smart Window**- smoke are impacted remotely by window control

- **Webcam**- control the home

DEDICATION

We dedicate this work to everyone who helped, supported, and encouraged us to complete this project and we would like to thank our trainer **Roaa Alanazi** for her guidance and supervision in the fulfilment of the project. She helped our group to apply what we had learned and to learn new technologies that would help us develop our project. We truly appreciate her support and her valuable feedback and critics of our work. We are grateful and thankful for this opportunity from **Tuwaiq Academy.**

1: INTRODUCTION

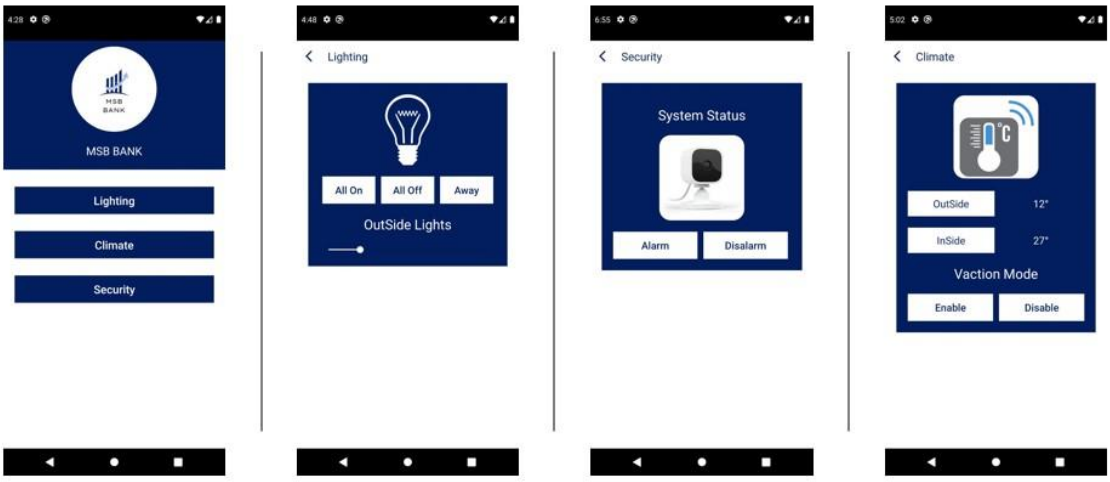
Problem Description:

The bank is one of the parties that needs a strong security system to protect it from theft, unauthorized entry, or attempt to penetrate and disrupt the system in it.

Project objective:

- ✓ Automate and control devices remotely via the Internet of Things Putting
- ✓ sensors around the entire building to increase safety
- ✓ Giving the employee a smart card to enter the bank
- ✓ Put working cameras in case you feel movement around the bank
- ✓ Control the work of lighting, air conditioners, fans, and windows
- ✓ Setting the fire detection system
- ✓ Set room temperature display system
- ✓ Water leak detection system
- ✓ Using solar energy to power electronic devices

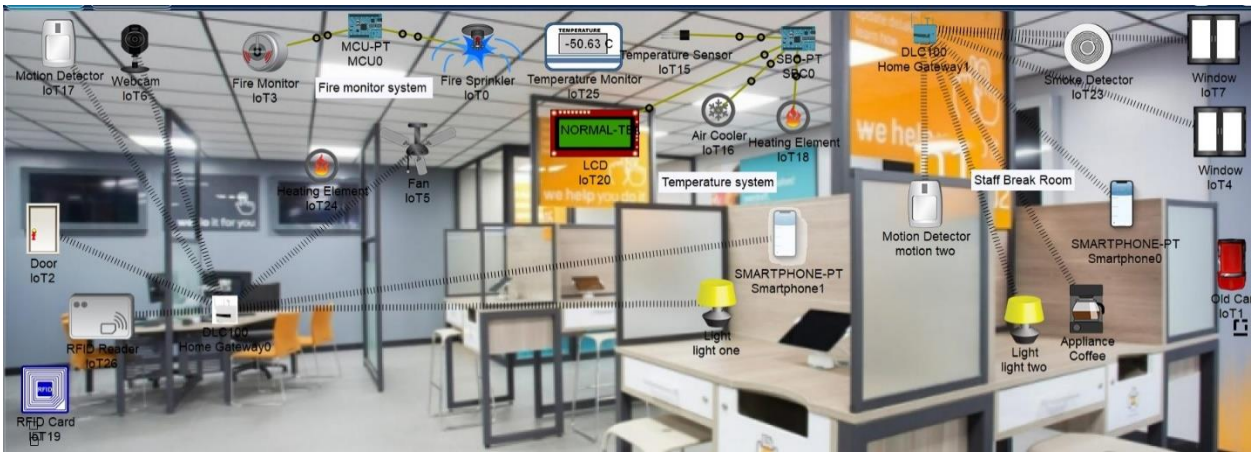
Software interface



HARDWARE IMPLEMENTATION:

Figure 1 shows the bank from outside

Figure 2 show the bank form inside



Hardware Code:

Detected water leaking system

Specifications Physical Config Desktop Programming Attributes

Blink (Python) - main.py

Open New Delete Rename Import

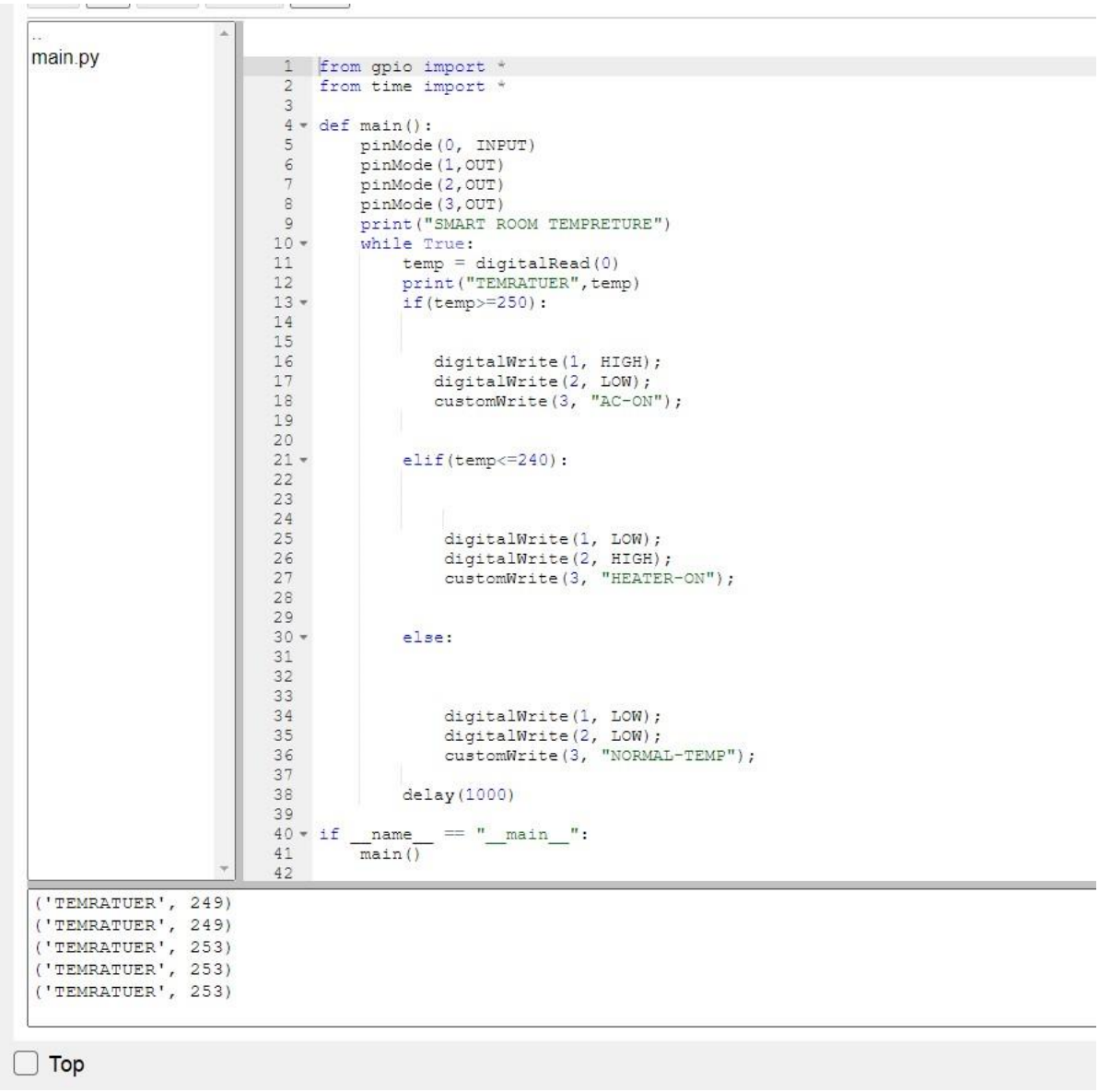
..

main.py

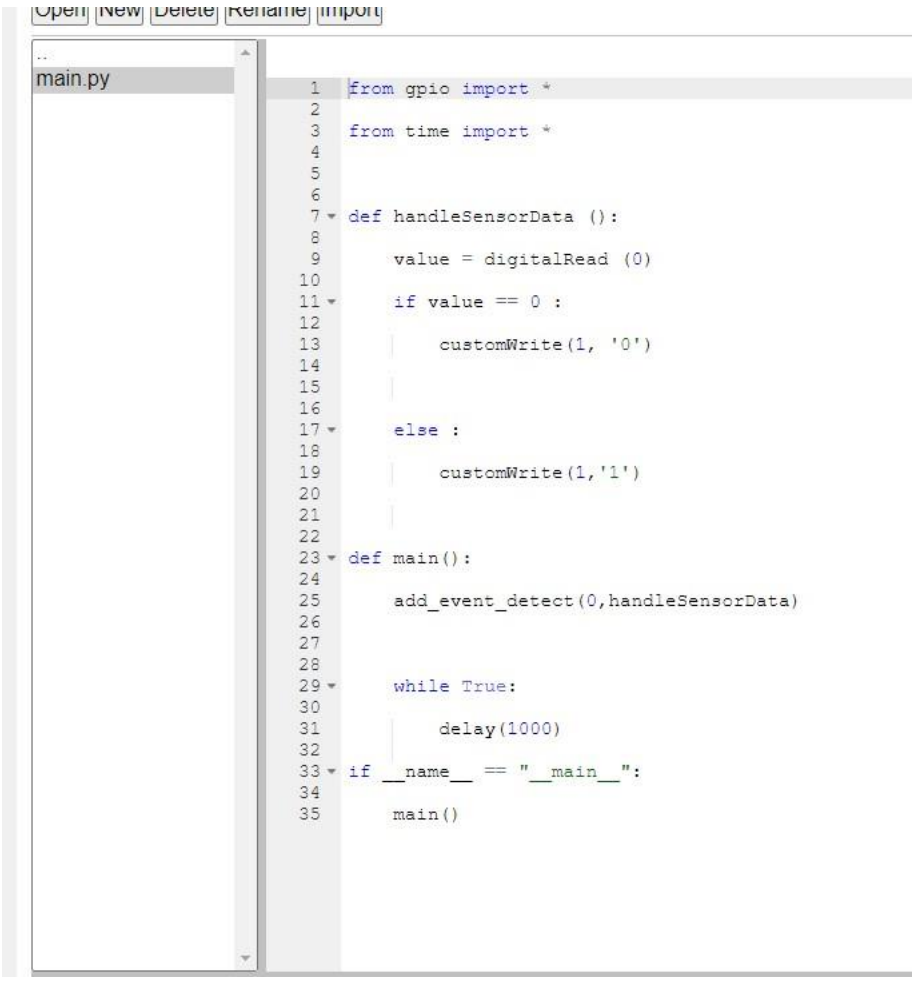
```
from gpio import *
from time import *

def main():
    pinMode(0, INPUT)
    pinMode(1, OUT)
    print("push button trigerd")
    while True:

        HANAN=LOW
        if(digitalRead(3)==LOW):
          customWrite(2, "system normal");
        digitalWrite(1,LOW);
        while(HANAN==LOW):
              if (digitalRead(0) == HIGH):
                  digitalWrite(1,HIGH);
                  customWrite(2,"BUTTON PUSHED");
                  delay(1000);
                  customWrite(2,"Water leaking");

                  delay(1000);
                  HANAN=HIGH;
                  break;


        delay(1000)
        digitalWrite(1, LOW);
        delay(500)

if __name__ == "__main__":
    main()
```

```
Starting Blink (Python)...
push button trigerd
Blink (Python) stopped.
Starting Blink (Python)...
push button trigerd
```

Room temperature System



Fire monitor system



Conclusion:

Banks may be exposed to a lot of theft operations or system penetration. In this project, we have used Internet of Things technologies and automated devices. Our goal is to increase the protection of the bank and control it intelligently, as well as work to make the work environment safe and under control.