

Parking System



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01

Parking System



Parking System Concept & Requirements



CONCEPT

The concept of the project is about designing and programming a Parking System for one of the Logistics sites under SISCO.

REQUIREMENTS

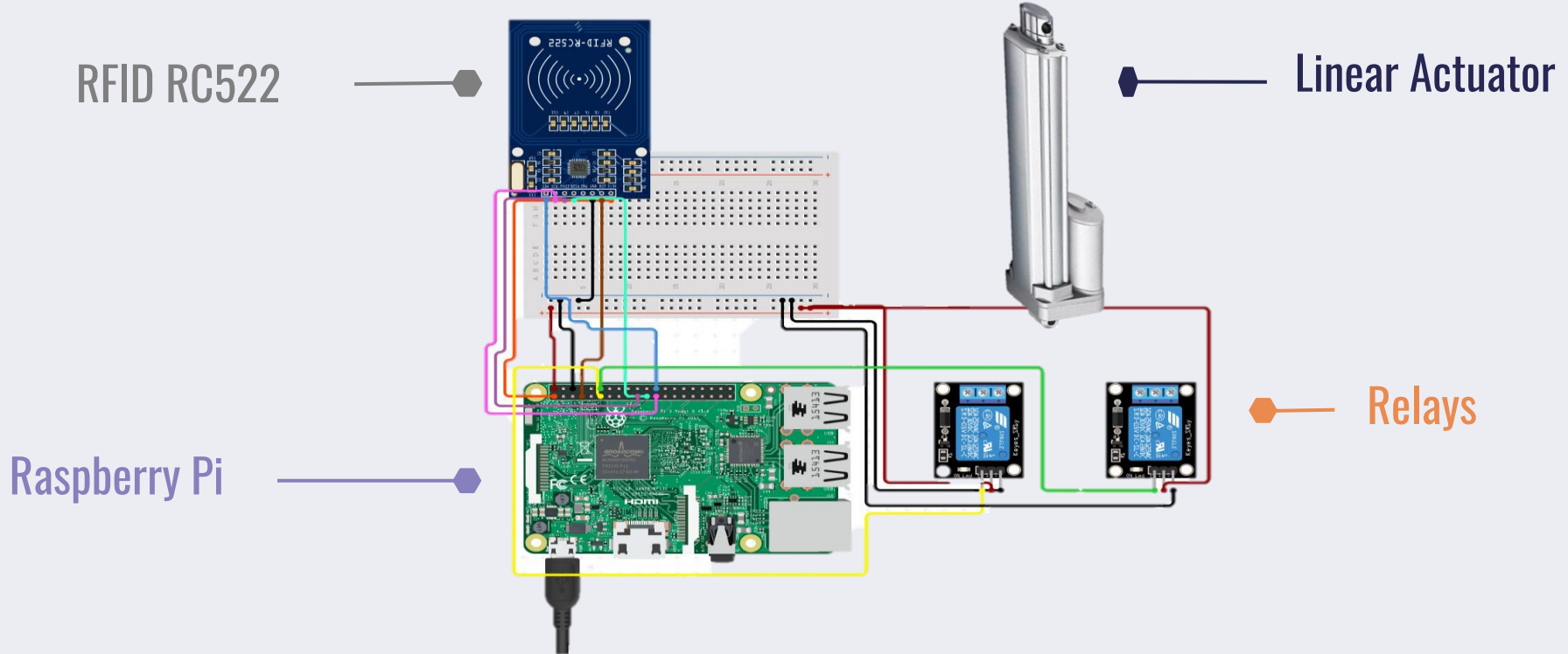
- The system should have a registration process through RFID.
- The system should count each Companies entered/exited trucks in the site.
- The system should allows/denies the access of the trucks based on the number of registered parking lots.

02

Hardware Components



Parking System Diagram

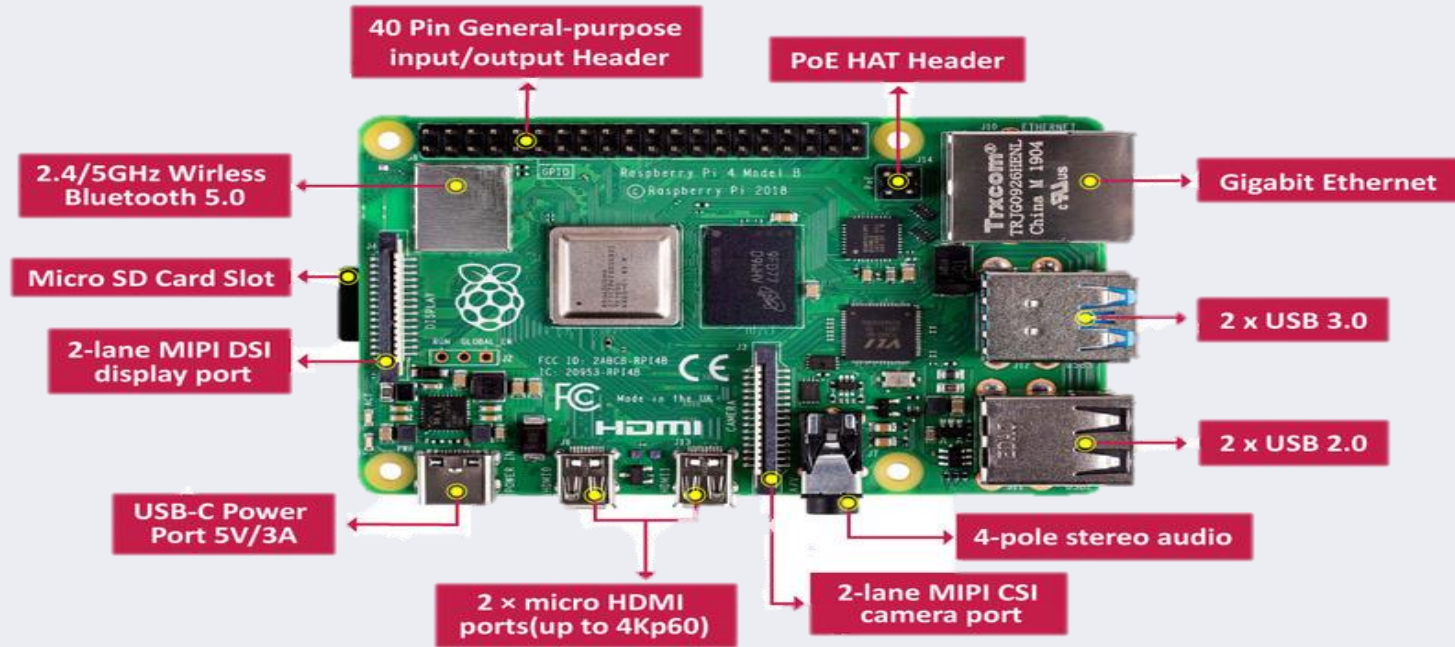




What is Raspberry Pi ?

The Raspberry Pi is a low cost, credit-card sized computer that plugs into a computer monitor or TV and uses a standard keyboard and mouse. It is a capable little device that enables people of all ages to explore computing.

Raspberry Pi 4 Model B



Raspberry Pi Pros & Cons

Pros

- Multiple Sensors
- Supports all type of Codes
- Faster Processor
- Can be Used as a Portable Computer

Cons

- Missing eMMC Internal Storage
- Impractical as a Desktop Computer
- Overheating



Radio Frequency Identification

RFID is a technology that uses radio waves to identify and track objects.



RFID Applications



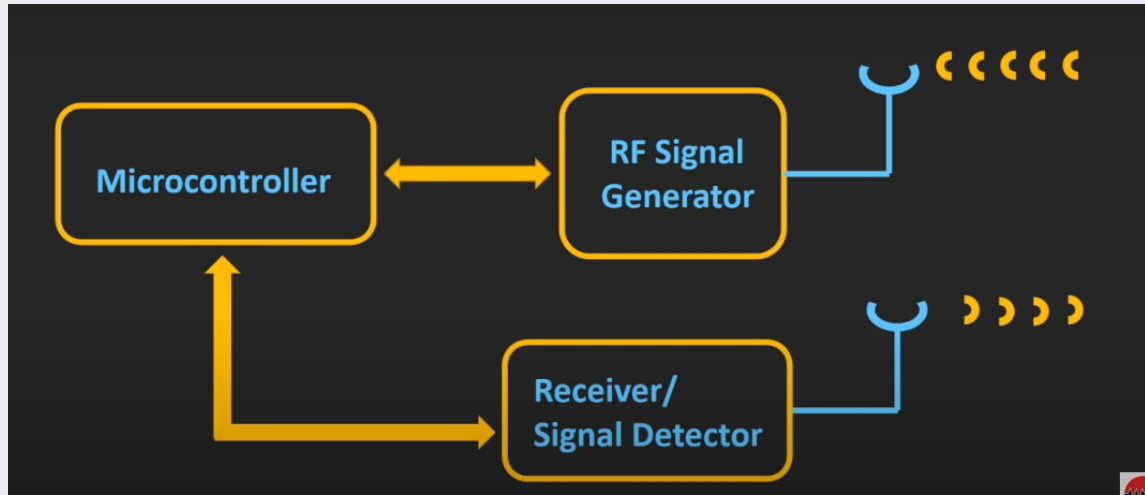
RFID Library Security Gate



RFID Race Timing System

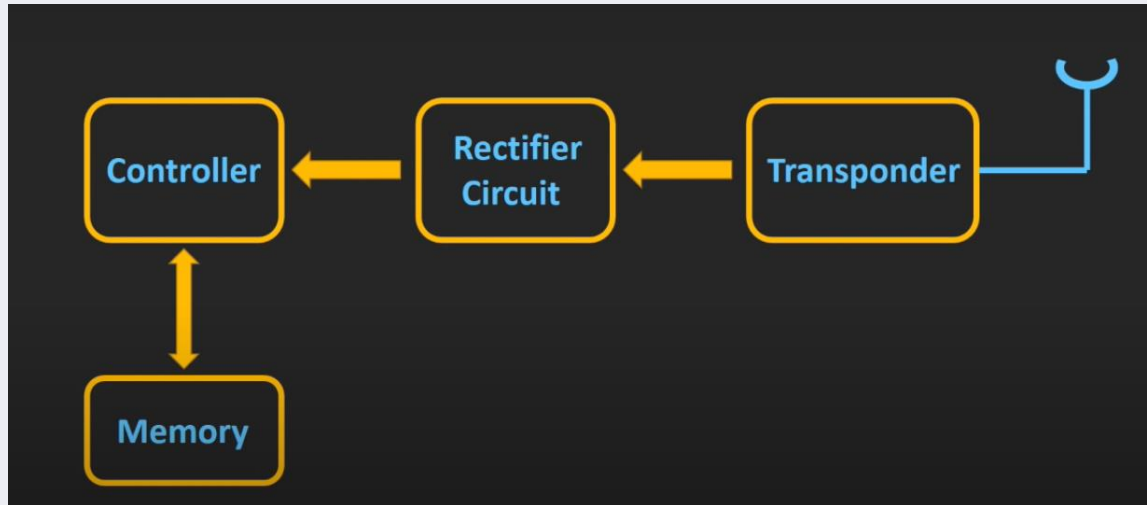
RFID System Components: Reader&Tag

1-Reader



RFID System Components: Reader&Tag

2-Tag

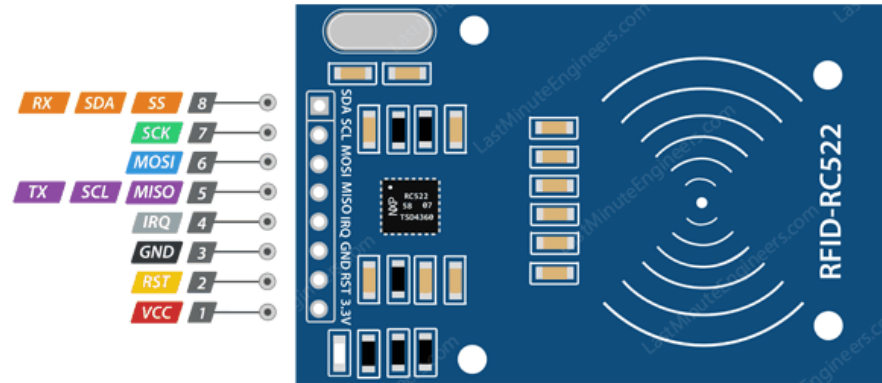


RFID RC522



Frequency Range	13.56 MHz ISM Band
Host Interface	SPI / I2C / UART
Operating Supply Voltage	2.5 V to 3.3 V
Max. Operating Current	13-26mA
Min. Current(Power down)	10 μ A
Logic Inputs	5V Tolerant
Read Range	5 cm

RFID RC522



RC522 Pinout

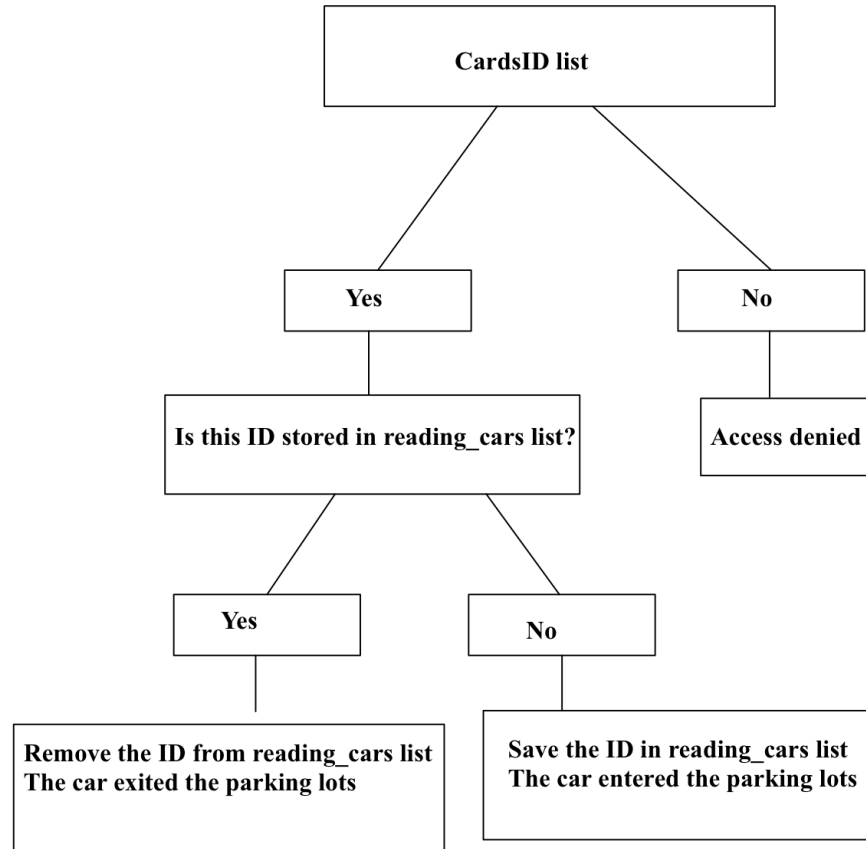


03

Coding Concept



Coding Concept

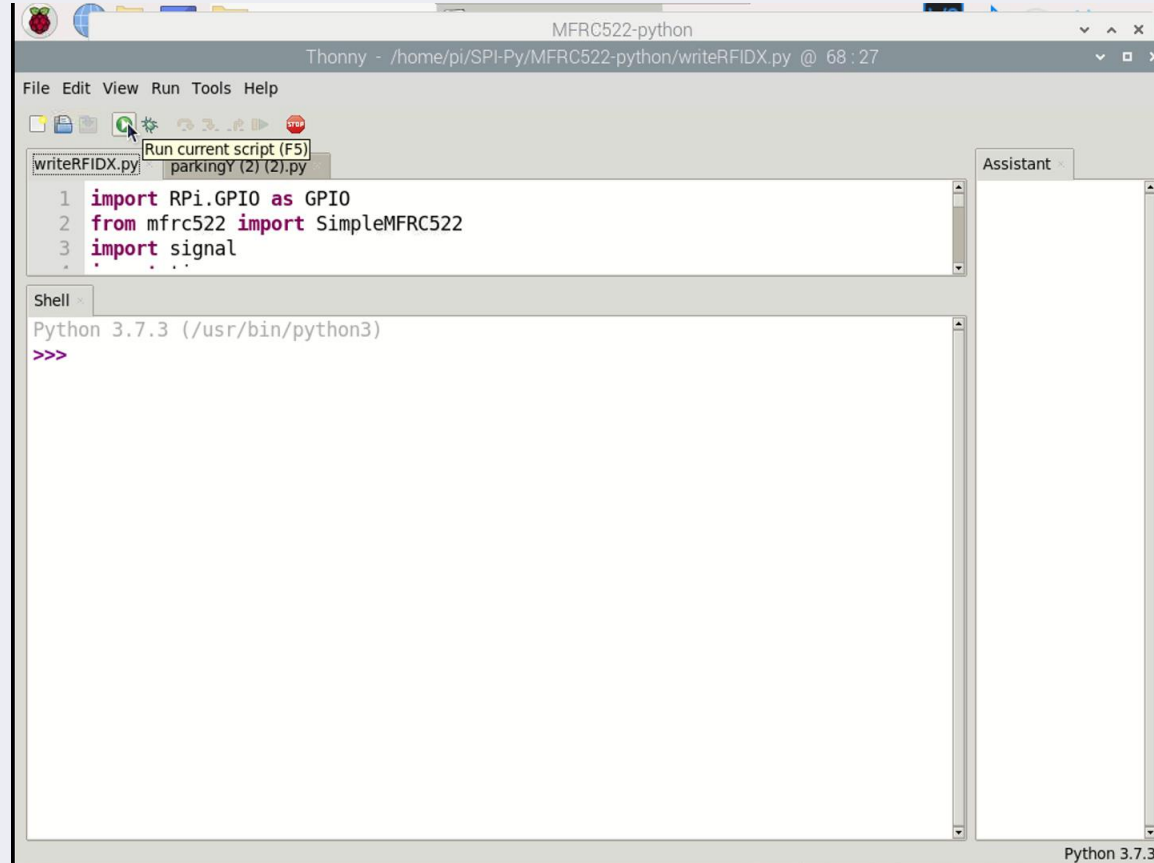


The slide features a light gray background with decorative elements. In the top right corner, there is a dark blue hexagon with an orange triangle above it and a purple line extending from its bottom right. In the bottom left corner, there is a purple triangle with a dark blue outline of a triangle inside it.

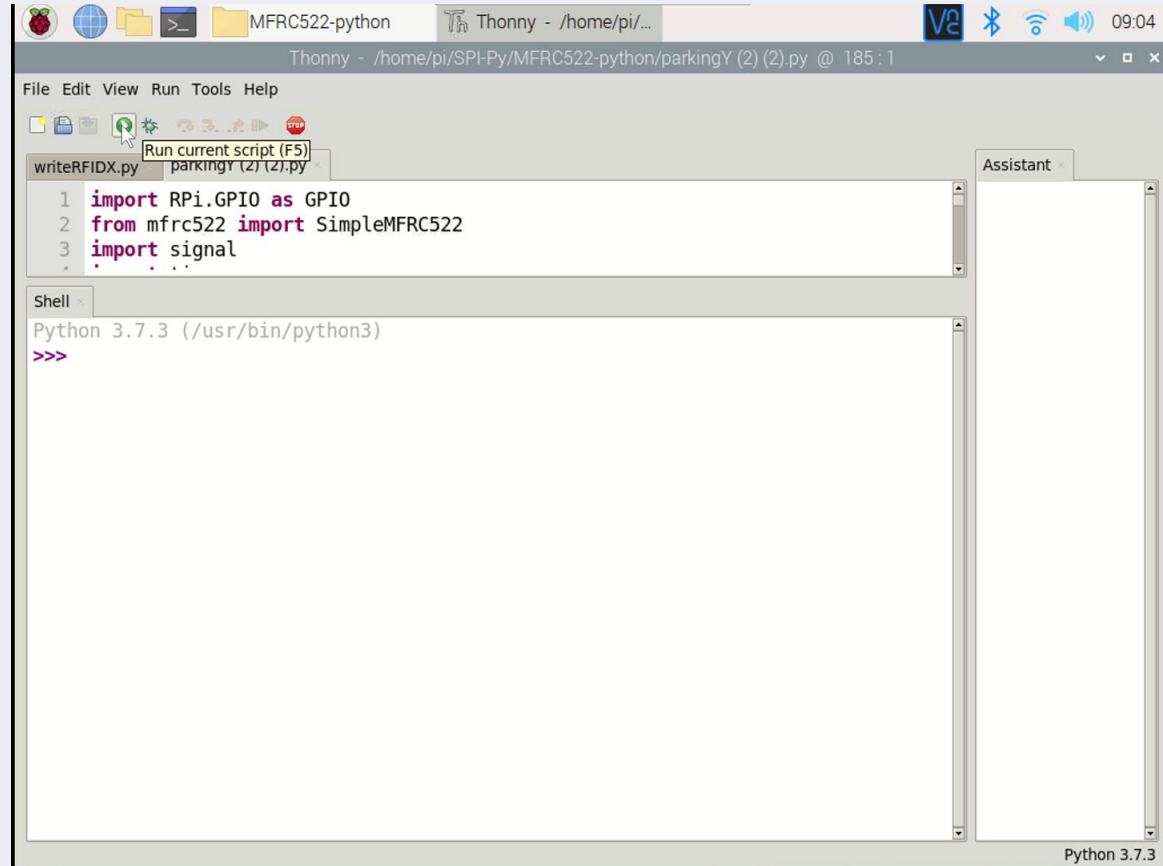
04

Prototype Demonstration

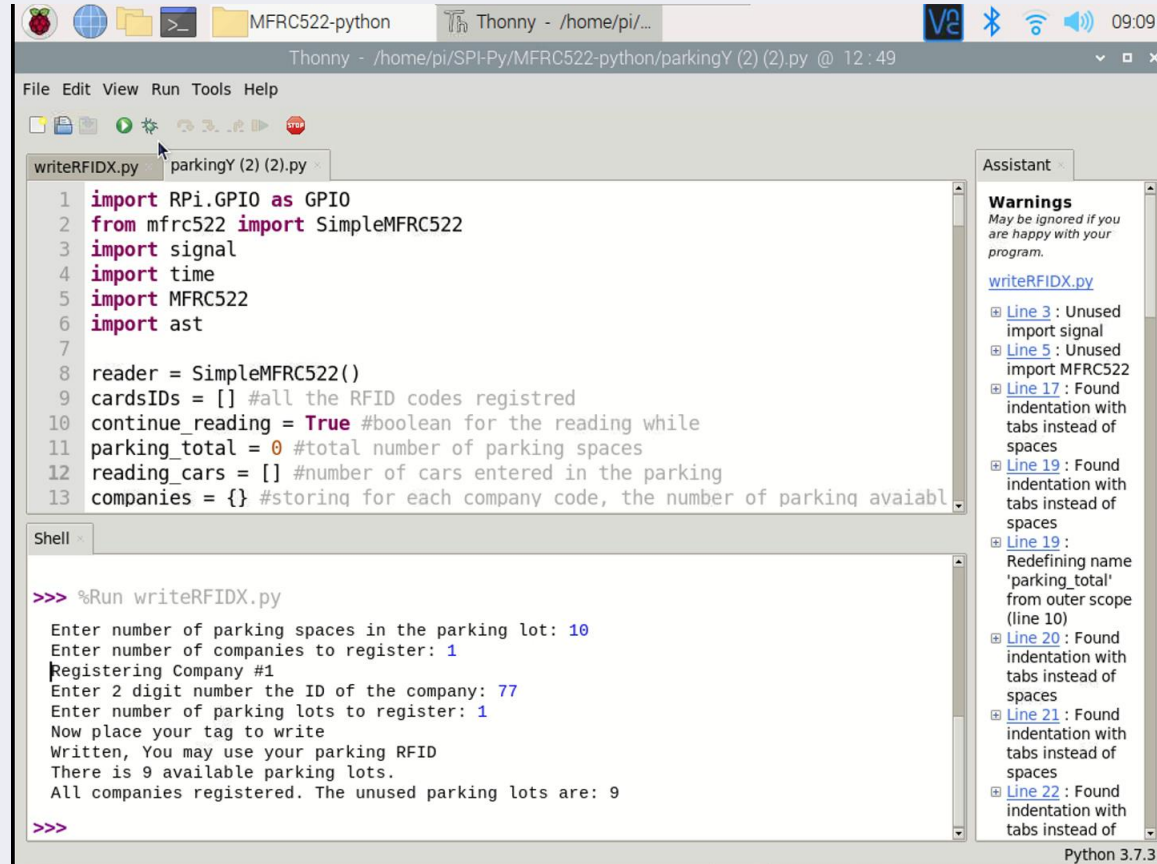
Registering Tags



Reading Tags



Access Denied Case



Thonny - /home/pi/SPI-Py/MFRC522-python/parkingY (2) (2).py @ 12:49

```
File Edit View Run Tools Help
```

```
1 import RPi.GPIO as GPIO
2 from mfr522 import SimpleMFRC522
3 import signal
4 import time
5 import MFRC522
6 import ast
7
8 reader = SimpleMFRC522()
9 cardsIDs = [] #all the RFID codes registered
10 continue_reading = True #boolean for the reading while
11 parking_total = 0 #total number of parking spaces
12 reading_cars = [] #number of cars entered in the parking
13 companies = {} #storing for each company code, the number of parking availabl
```

Shell

```
>>> %Run writeRFIDX.py
Enter number of parking spaces in the parking lot: 10
Enter number of companies to register: 1
Registering Company #1
Enter 2 digit number the ID of the company: 77
Enter number of parking lots to register: 1
Now place your tag to write
Written, You may use your parking RFID
There is 9 available parking lots.
All companies registered. The unused parking lots are: 9
>>>
```

Assistant

Warnings
May be ignored if you are happy with your program.

[writeRFIDX.py](#)

- Line 3: Unused import signal
- Line 5: Unused import MFRC522
- Line 17: Found indentation with tabs instead of spaces
- Line 19: Found indentation with tabs instead of spaces
- Line 19: Redefining name 'parking_total' from outer scope (line 10)
- Line 20: Found indentation with tabs instead of spaces
- Line 21: Found indentation with tabs instead of spaces
- Line 22: Found indentation with tabs instead of

Python 3.7.3



THANKS!

Do you have any questions?

