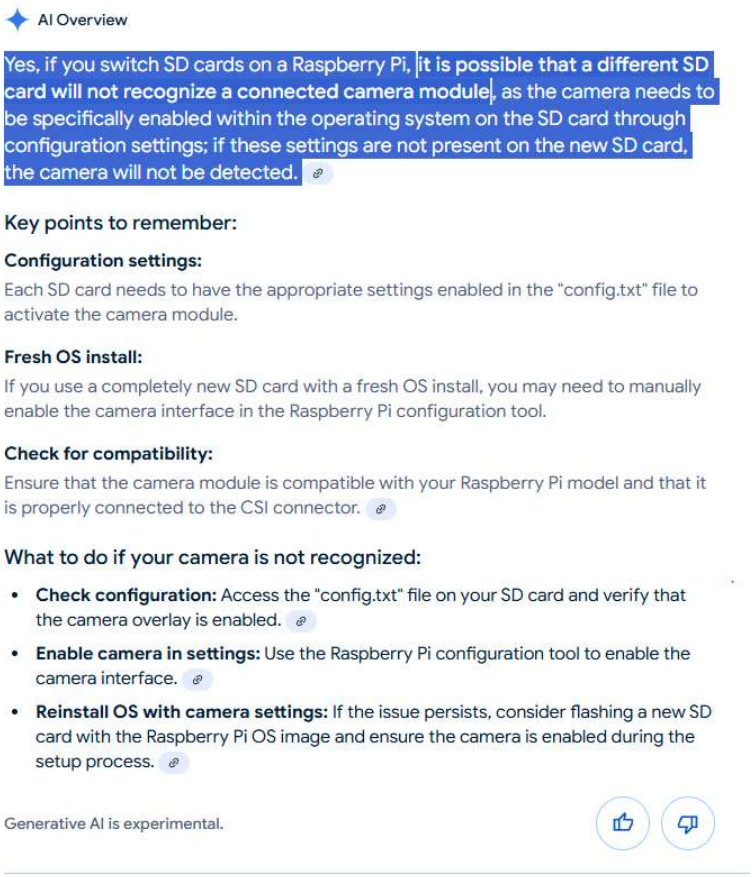
Journal #02

Last week's problem: The camera module couldn't be recognized, so we couldn't take pictures since we need to enable the camera to be able to do that

Thursday 21st: Continuation our problem

- Since we couldn't progress a lot, because we needed to connect the Raspberry Pi to a screen, we decided to search the different **possibilities** for our problem:

1. <u>We used a different SD:</u> The first time we used our camera module, we used the SD card from a Raspberry keyboard, then second time, my partner changed the SD card for one that had a bigger storage. Since then, we've been using the new one and the camera is not being recognized. I searched if using a new SD card could affect the camera and here was what we found:



However, we followed the same steps as we did for the first SD card, so we're not sure if this is the problem that we're having, but it is still the closest answer to our problem

2. **SD card damaged:** This was another possibility. Unfortunately, we tested it and it was, in fact, not damaged so this is not our answer.

3. **libcamera-hello:** This command was also recommended by the Raspberry Pi community to check if the camera is working by showing a 5-second preview of what the camera is pointing at using the screen as a way to display the preview. However, to be able to use this command, we had to enable the camera and that was our main problem.

- **Conclusion**: We still had no clue on why it did not work. We searched multiple forums to see if other people had the same problems:

- https://community.element14.com/products/raspberry-pi/f/forum/38172/touchscreen-and-camera-not-recognized -> This person could not figure out why their screen and their camera were not being recognized but they were using a different Raspberry Pi model. Their problem was their ribbon cable was facing the wrong way

- https://forum.prusa3d.com/forum/general-discussion-user-experience-ideas/pi-camera-not-found-where-is-the-problem/ -> This was a completely different project/architecture and they were using a prusaConnect so this would not answer our questions.

- https://forum.edgeimpulse.com/t/cannot-detect-camera-when-using-raspberry-pi-4/4202 ->These persons were using the same Raspberry Pi model (rp 4) and the same camera module (camera v2) and they had the same problem as us: they can still take pictures, but the camera is not being recognized. This also had some similar information to the answer from Google (picture above). We tried, but we got confused because we did not know how to reach that file. So we took the easiest

way out and we switched to the old SD card. (Now that I'm writing this, I feel like this could have fixed our problem, so I'll try this method and see if I can give feedback for next week)

Thursday 22nd: We fixed the camera recognition

-Now that we switched SD cards, the camera was finally recognized. We didn't really fix the previous problem, we just switched back to the old SD card. So our plan was to take a picture when the button is clicked:

- Thonny: software that we used to create the script and to code using the language Python:

- Script:

-Here we are importing the button methods and everything from the gpiozero library and for the camera we import it from PiCamera. We then associate the button to the button and the GPIO associated with it, which is 2 and we do the same thing for the camera.

- Before doing this, we visited a teacher from the computer engineering department and he recommended us to create a code to see if the code or the button is the problem and it finally worked.

```
from gpiozero import Button

button = Button(2)

def button_pressed():
    print("Button was pressed!")

button.when_pressed = button_pressed
```

-Now we checked if the camera could take pictures using the button. The code from the book was not working and since we used the statement: camera.start_preview(), the view of the camera appeared and it was waiting for us to press the button but it would not work, so we were stuck on the preview and it was taking the whole screen, so we tried every possible shortcut on the keyboard and it did not work, so we just unplugged the cable from the Raspberry PI and it worked but I believe that it is not the most efficient way.

-End of our session:

-Before quitting, I tried this code but it just didn't work

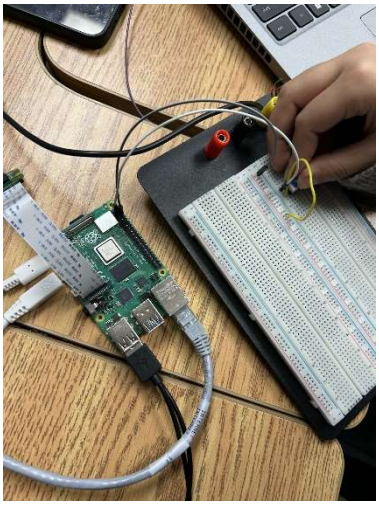
-from picamera import PiCamera

from gpiozero import Button

button.when_pressed = camera.capture('path')

-It did not work since I don't believe that it exists in Python (I used my Java knowledge to see if it was similar but it did not work). The problem was that I needed to define a function for the camera capture, so this was not going to work.

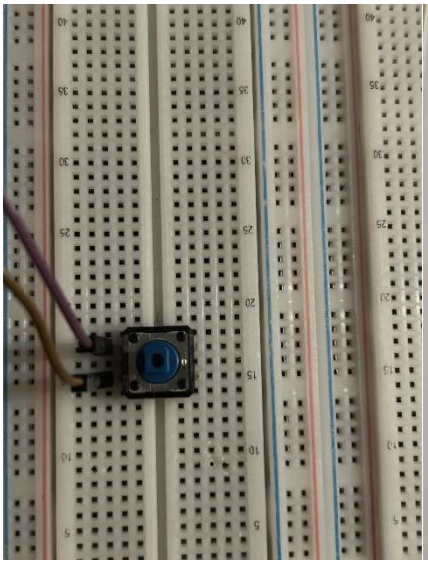
-Conclusion: We finally made the button work by creating a script that would print something when the button was clicked, and we made the camera recognizable by switching back to the old card



preview of our setup

Sunday 23rd: End of our problem

- Raspberry Pi:
    - After Friday, I decided to take the Raspberry Pi home (camera module, buttons, M-M/M-F/F-F connectors and the Raspberry Pi book from my teammate)
    - My brother told me where to plug the connectors with the breadboard and the Raspberry Pi and he told me that we could remove a connector since it wasn't the new setup allowed us to use only 2 connectors:



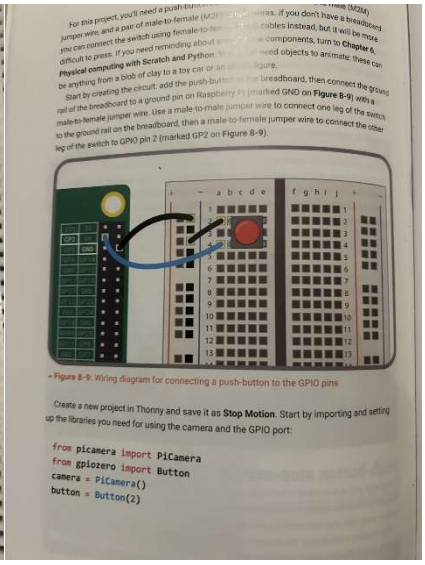
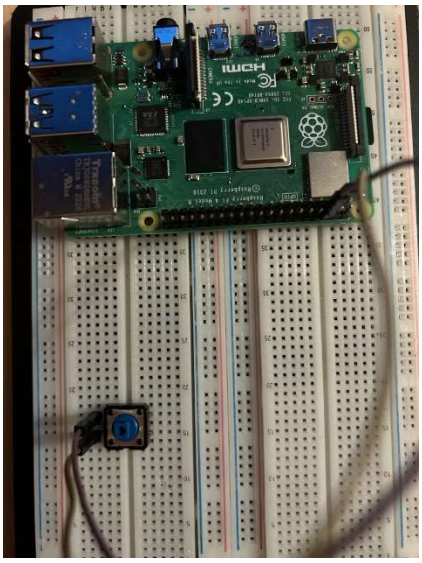


Figure 8-9: Wiring diagram for connecting a push-button to the GPIO pins

Create a new project in Thonny and save it as **Stop Motion**. Start by importing and setting up the libraries you need for using the camera and the GPIO port:

```
from picamera import PiCamera
from gpiozero import Button
camera = PiCamera()
button = Button(2)
```



close-ups of the different set-ups that my brother suggested

- I finished the rest of the setup and connected it to my TV.
- During Friday's period, while doing the button tests and by using the teacher's recommendation, we understood that our code to print a line when a button was pushed was right and the button, along with the cables, was correct so the problem is in the code where we test the camera when the button is pushed.
- Since we switched SD card's, the problem was not the camera recognition but instead the code and the library PiCamera/python3-camera
- Commands to install the library:

- sudo apt update

sudo apt upgrade

sudo apt install python3-picamera

- Verified that everything was working and now I wrote the same script as Friday to see if the button was working and now i proceed with the code for the camera
- from picamera import PiCamera

```
from gpiozero import Button

Button = Button(2)

camera = PiCamera

def take_picture:

    camera.capture('/home/danat/Desktop/images/image.jpg')

button.when_pressed = take_picture
```

- Then an error kept happening and It took me 1h to realise my problem:
    - error: missing 1 required positional argument: 'output'`
- However, I in fact added the path to the capture method so I did not understand the problem. The problem was just that I was missing the parenthesis after PiCamerae: camera = PiCamera()
- Finally, it took a picture when I clicked the button and the problem was finally fixed

https://github.com/ayakharchafi/Unix-Project24.git