ifelsestatement-multiranger

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1 Crazyflie Obstacle Detection Notebook

This notebook demonstrates how to control a Crazyflie drone with Multi-Ranger sensors to detect obstacles before moving.

1.1 Steps:

1. Import necessary libraries
2. Initialize the Crazyflie controller and Multi-Ranger sensors
3. Take off and check for obstacles before moving forward
4. Land safely and close the connection

```python
# Step 1: Import Necessary Libraries
import time
from crazyflie_controller import CrazyflieController
from cflib.utils.multiranger import Multiranger  # Import Multi-Ranger sensors
```

```python
# Step 2: Initialize the Crazyflie Controller and Multi-Ranger
drone = CrazyflieController()  # Create an instance of the controller
ranger = Multiranger(drone.scf)  # Initialize Multi-Ranger sensors
```

```python

```

```python
# Step 3: Take Off and Perform Obstacle Detection
try:
    print("Taking off!")
    drone.mc.take_off(0.5)  # Takeoff to 0.5 meters
    time.sleep(1)

    # Check if an obstacle is ahead before moving forward
    if ranger.front > 0.3:  # No obstacle within 30 cm
        print("Path is clear! Moving forward...")
        drone.mc.forward(0.5)  # Move forward 0.5 meters
    else:
        print("Obstacle detected! Stopping movement.")

    print("Landing the drone...")
    drone.mc.land()  # Land safely
```

```
        print("Mission complete!")

except KeyboardInterrupt:
        print("Emergency stop activated!")
```

```
[ ]: # Step 4: Close the Drone Connection
     print("Closing the connection to the drone...")
     drone.close()  # Ensure the connection is properly closed
```