02_02_if_else_student_hs_

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1 If/Else Logic with the Drone – Student Version

In this lesson, you'll learn how to use **if/else statements** to make the drone **think and react**!

You'll write code that checks the drone's sensors and uses conditions to decide how to move.

1.1 Helpful Commands

Command	Description
`get_height()`	Get the current height of the drone
`get_position()`	Get the drone's (x, y) location
`get_yaw()`	Get the drone's rotation (yaw angle in degrees)
`get_velocity()`	Get the drone's current velocity
`get_status()`	Check if the drone is flying or landed
`get_log()`	View the history of all commands sent
`detect_obstacle()`	Returns `True` if any sensor detects something close
`get_distances()`	Returns all sensor values as a dictionary
`get_distances()['front']`	Gets distance to an object in front (in meters)
`get_distances()['left']`	Gets distance to the left side (in meters)
`get_distances()['right']`	Gets distance to the right side (in meters)
`get_distances()['back']`	Gets distance to the back side (in meters)

[ ]:

```python
#  Setup the simulator
from crazyflie_sim import CrazyflieSimulator
drone = CrazyflieSimulator(real=False)
```

1.2 Example: React if there's an obstacle

This example checks if an obstacle is in front of the drone. If so, it moves back.

[ ]:

```python
if drone.detect_obstacle():
    print("Obstacle ahead! Moving back.")
    drone.backward(0.2, 0.2)
```

1.3 Exercise 1: Take off and check height

Take off and then **use `if` to check if the height is over 0.2 meters**. If it is, print `High enough!`

[ ]:

```
# Your code here:
```

1.4 Exercise 2: Check left distance

Use `get_distances()` to check the **left side**. If it is more than 0.5 meters, move left 0.2 meters.

[ ]:

```
# Your code here:
```

1.5 Exercise 3: Move to open space

Check both the left and right distances. - If left is greater, move left. - If right is greater, move right.

[ ]:

```
# Your code here:
```

1.6 Exercise 4: Use `else`

Try using `else` to make the drone do something **if the condition is false**. Example: If front is blocked, turn. Else, move forward.

[ ]:

```
# Your code here:
```

1.7 Challenge: Escape logic

Write if/else code to help the drone: - Check if it's too close on all sides - If so, print `I'm trapped!` - Else, move in any safe direction.

[ ]:

```
# Your code here:
```