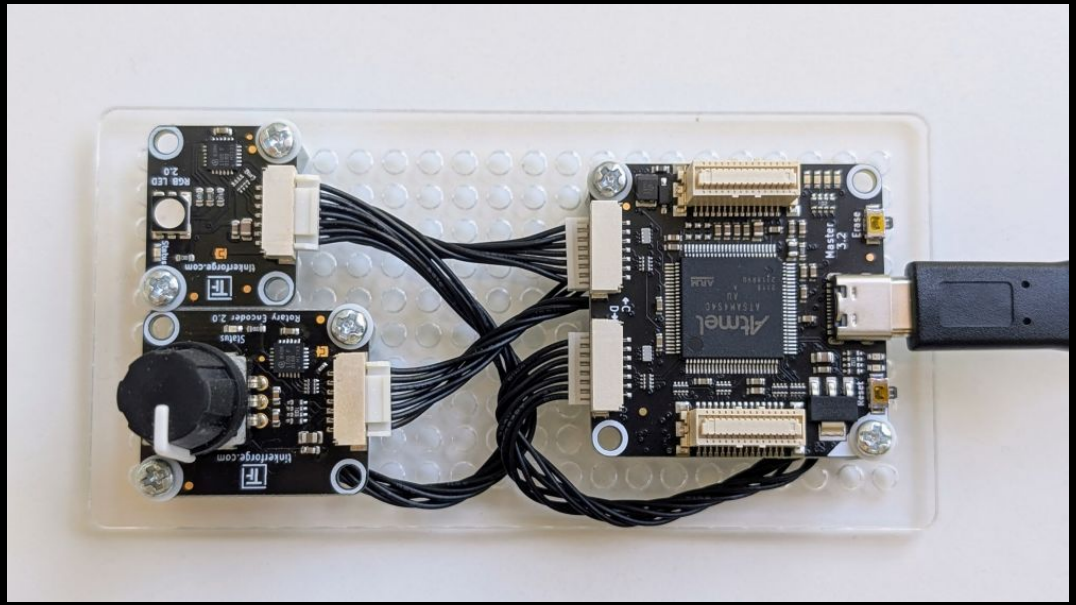
These slides serve as a visual aid for the lecture, not as a comprehensive document or script.

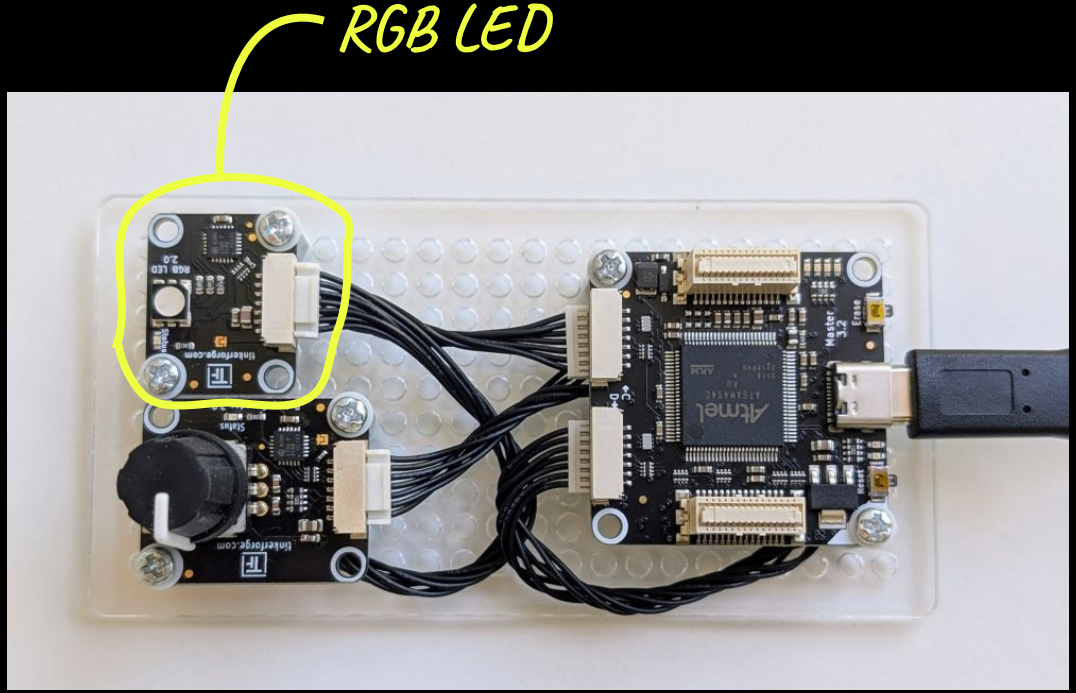
Please refrain from printing these slides to help protect the environment.

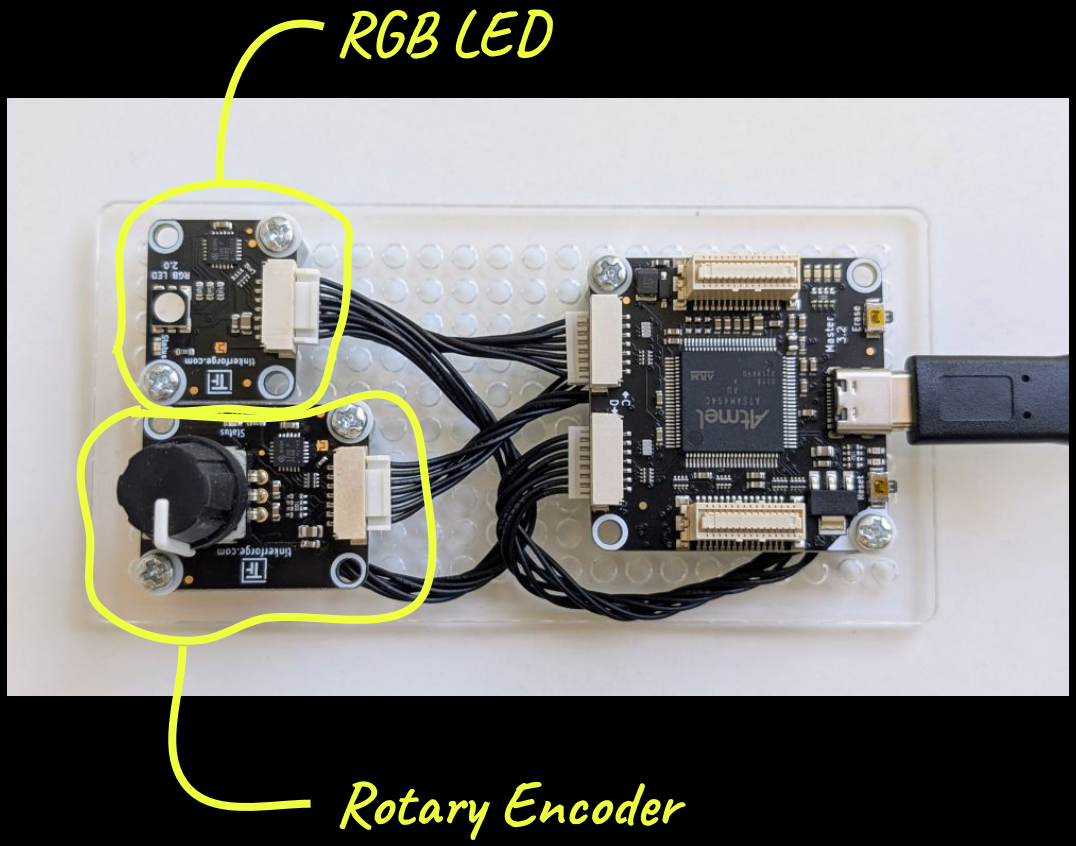
For any comments or feedback, please contact n.meseth@hs-osnabrueck.de.

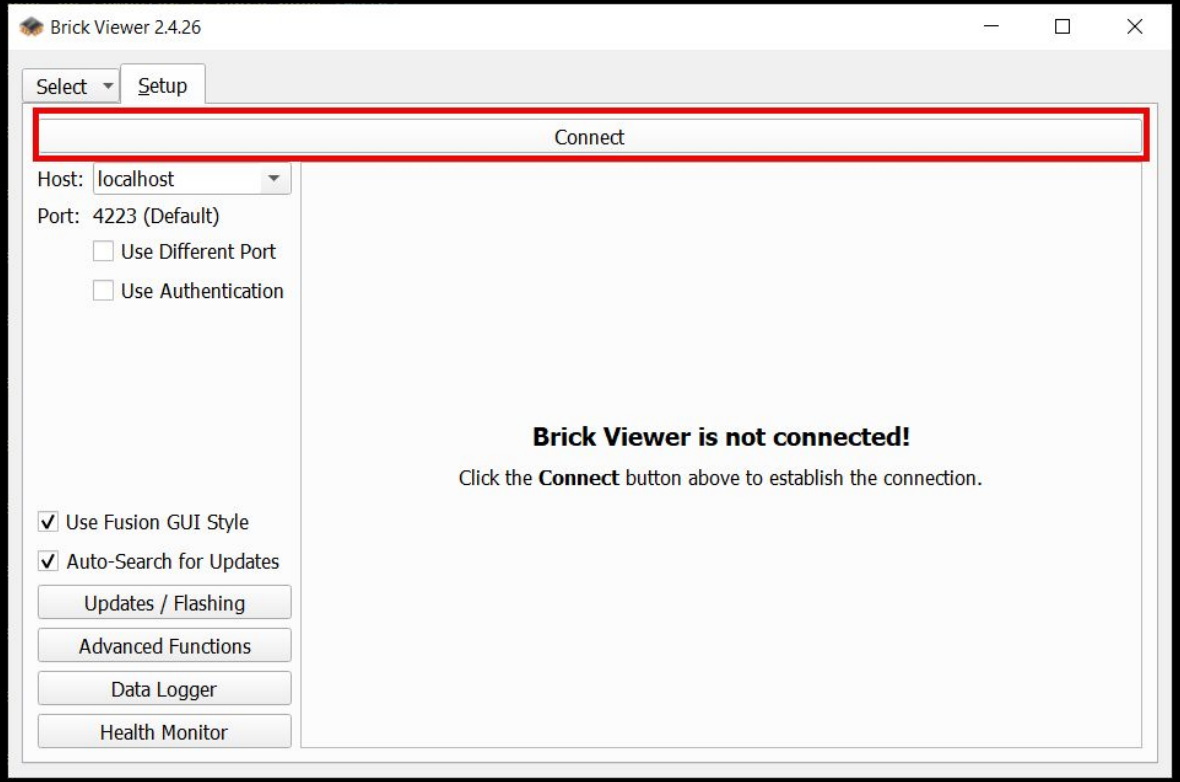
IMAGES

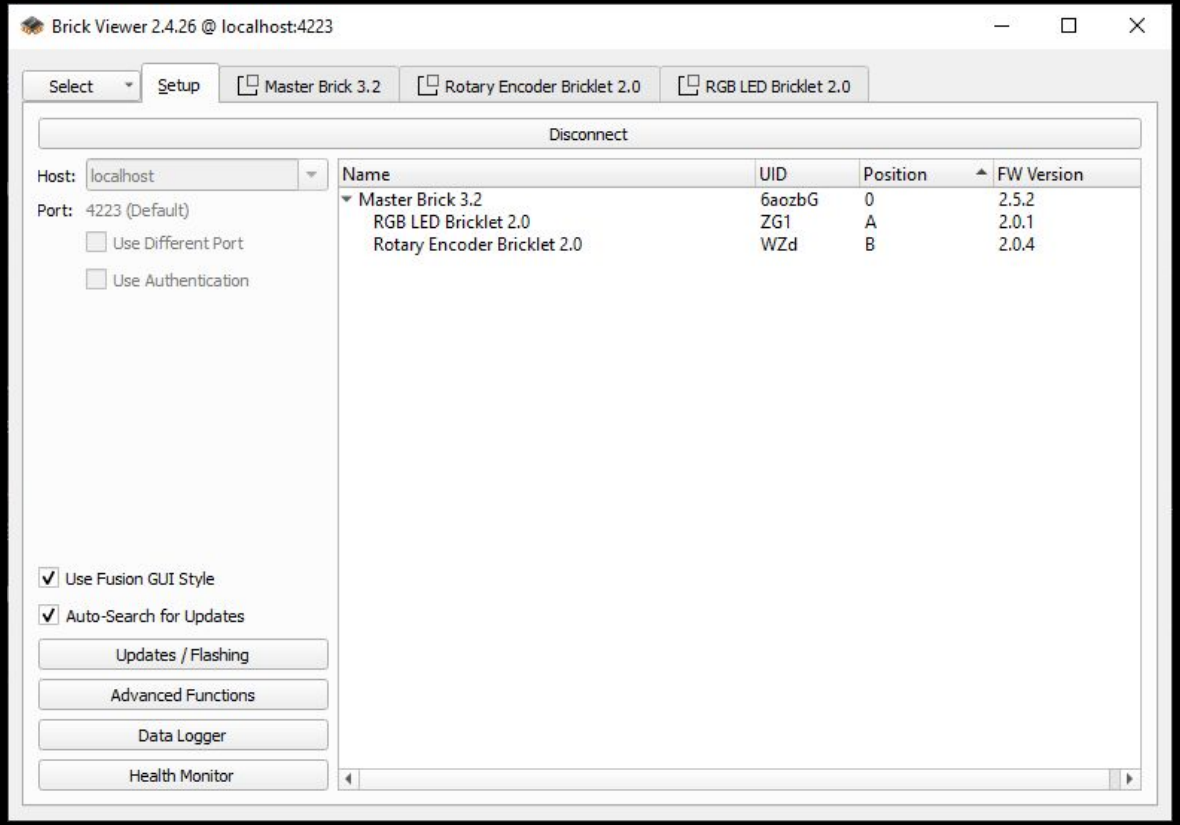
Supporting slides for chapter 4 of the book
Hands-On Computer Science

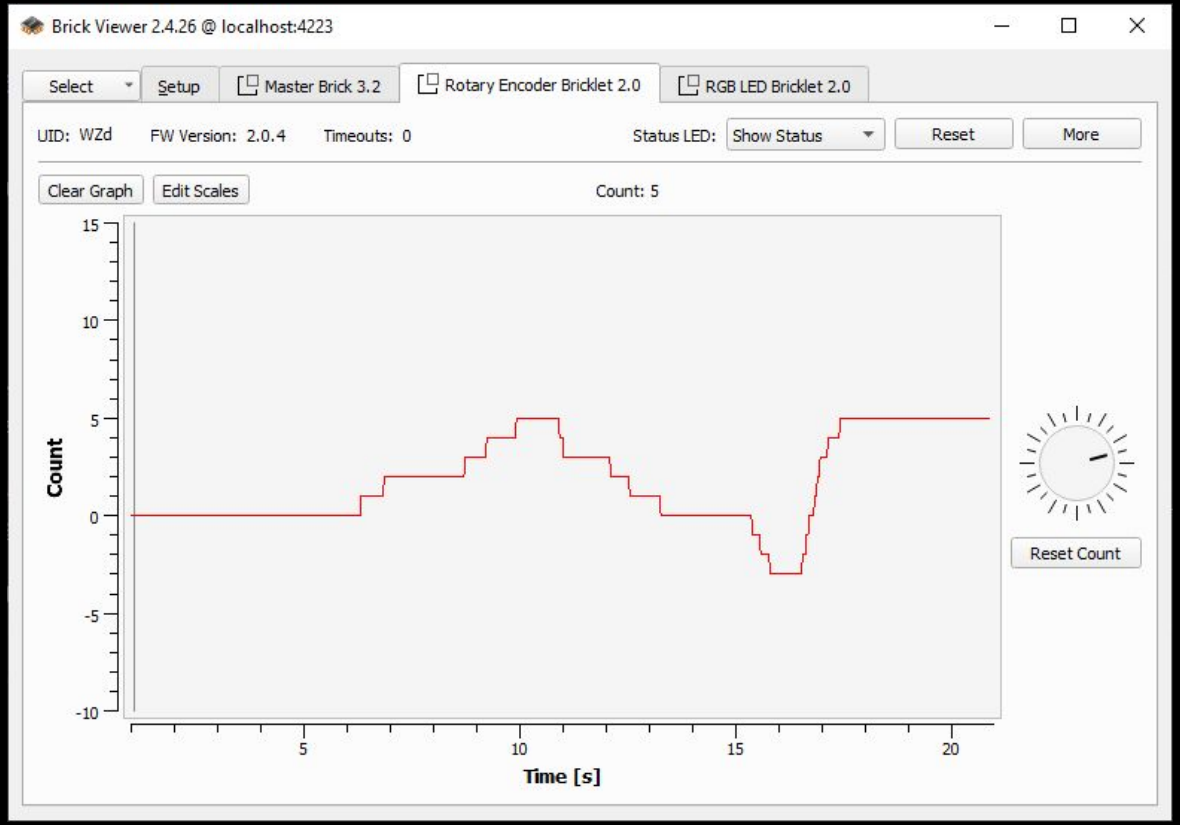

Rotary Encoder 2.0
Status
Master 3.2
Erase
Reset
atmel
ATSAMD21
ARM


RGB LED


RGB LED
Rotary Encoder


Brick Viewer 2.4.26
Select
Setup
Connect
Host: localhost
Port: 4223 (Default)
Use Different Port
Use Authentication
Brick Viewer is not connected!
Click the Connect button above to establish the connection.
Use Fusion GUI Style
Auto-Search for Updates
Updates / Flashing
Advanced Functions
Data Logger
Health Monitor


Brick Viewer 2.4.26 @ localhost:4223
Select
Setup
Master Brick 3.2
Rotary Encoder Bricklet 2.0
RGB LED Bricklet 2.0
Disconnect
Host:
localhost
Port:
4223 (Default)
Use Different Port
Use Authentication
Name
UID
Position
FW Version
Master Brick 3.2
6aozbG
0
2.5.2
RGB LED Bricklet 2.0
ZG1
A
2.0.1
Rotary Encoder Bricklet 2.0
WZd
B
2.0.4
Use Fusion GUI Style
Auto-Search for Updates
Updates / Flashing
Advanced Functions
Data Logger
Health Monitor


Brick Viewer 2.4.26 @ localhost:4223
Select
Setup
Master Brick 3.2
Rotary Encoder Bricklet 2.0
RGB LED Bricklet 2.0
UID: WZd
FW Version: 2.0.4
Timeouts: 0
Status LED:
Show Status
Reset
More
Clear Graph
Edit Scales
Count: 5
15
10
5
0
-5
-10
Count
5
10
15
20
Time [s]
Reset Count

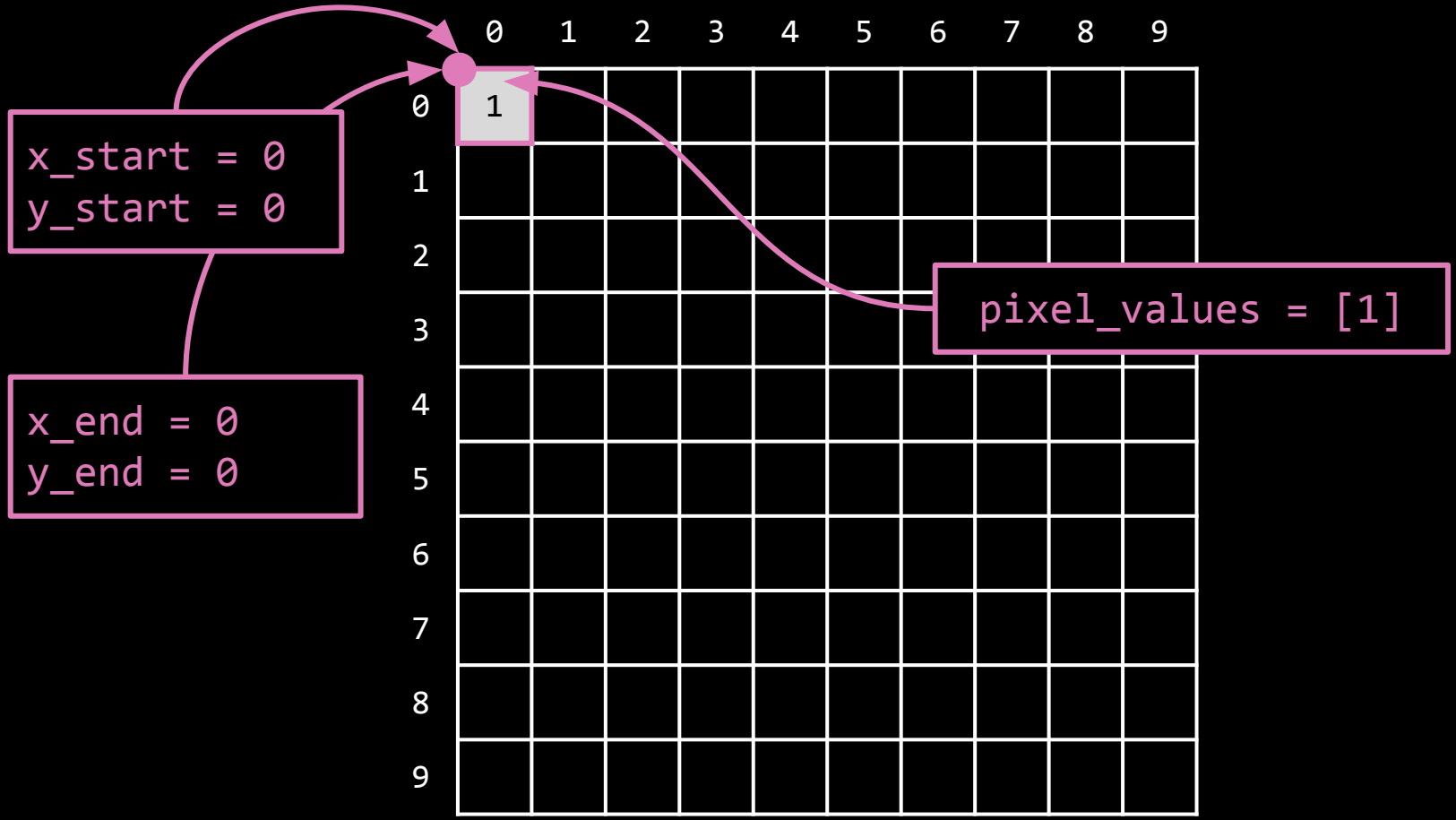
boilerplate code

```
from tinkerforge.ip_connection import IPConnection
from tinkerforge.bricklet_rotary_encoder_v2 import BrickletRotaryEncoderV2

ipcon = IPConnection()
ipcon.connect("localhost", 4223)
knob = BrickletRotaryEncoderV2("WZd", ipcon)
```

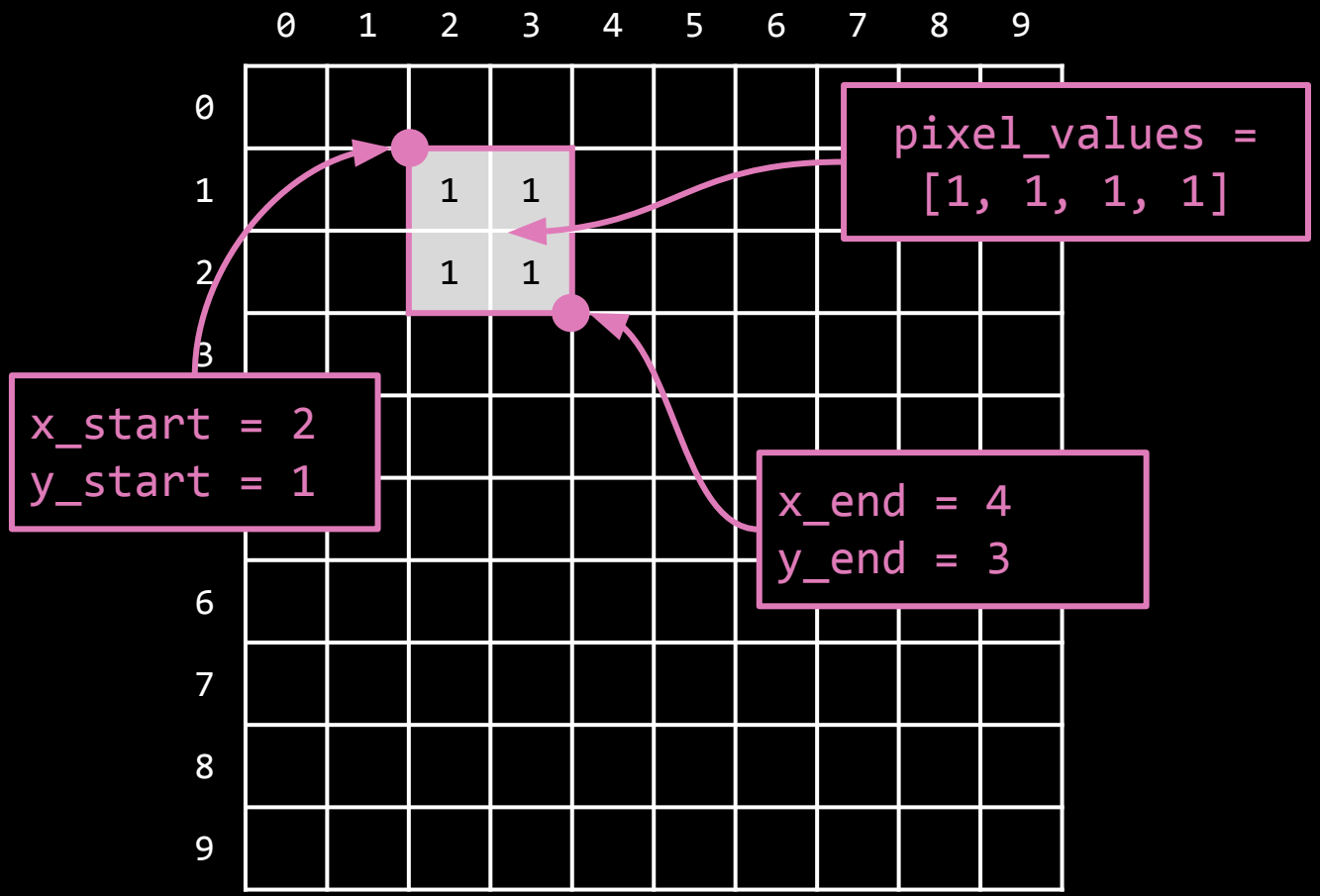
reading the counter

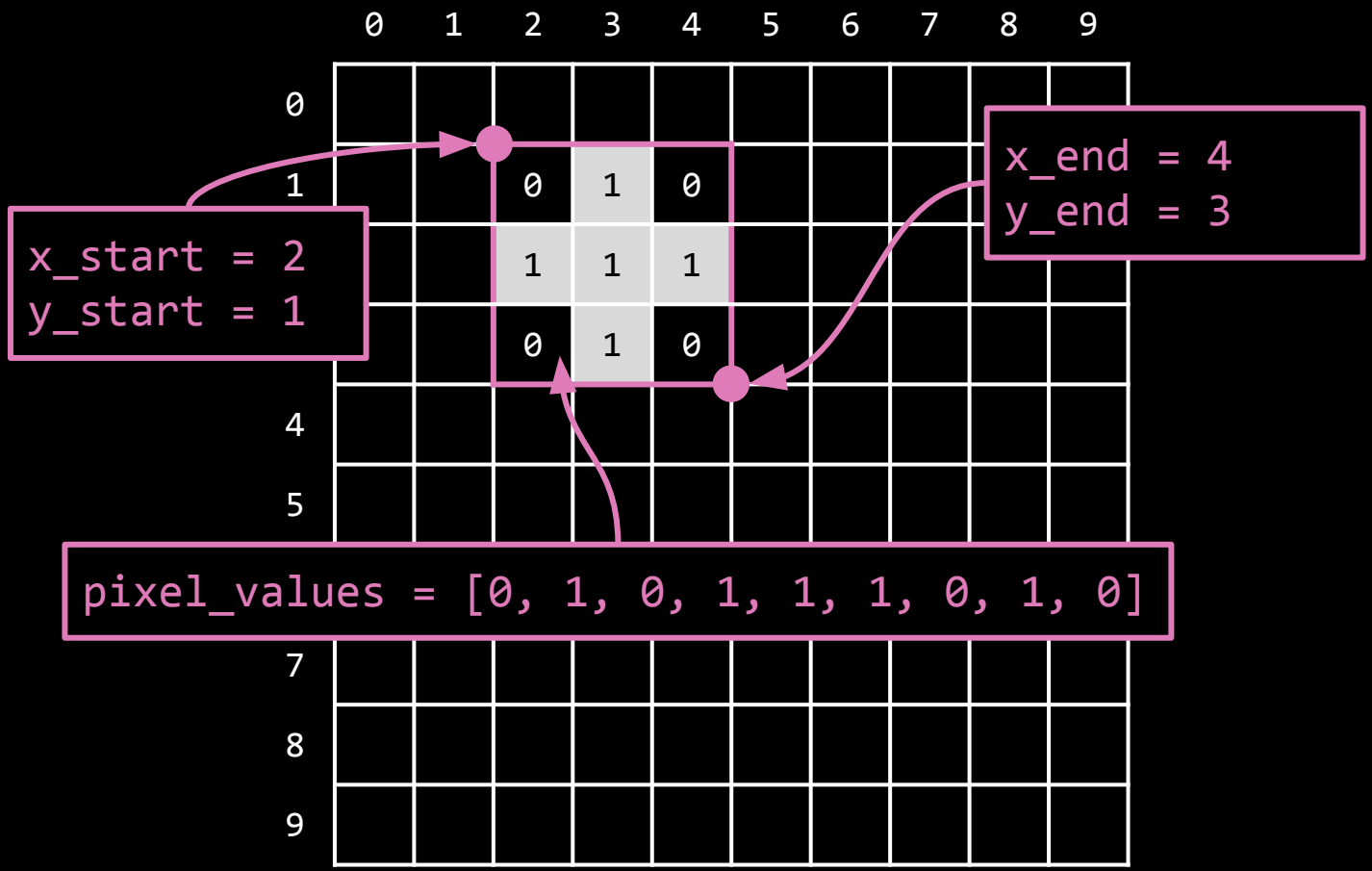
```
from tinkerforge.ip_connection import IPConnection
from tinkerforge.bricklet_rotary_encoder_v2 import BrickletRotaryEncoderV2

ipcon = IPConnection()
ipcon.connect("localhost", 4223)
knob = BrickletRotaryEncoderV2("WZd", ipcon)

count = knob.get_count(reset=False)
```

PIXELS

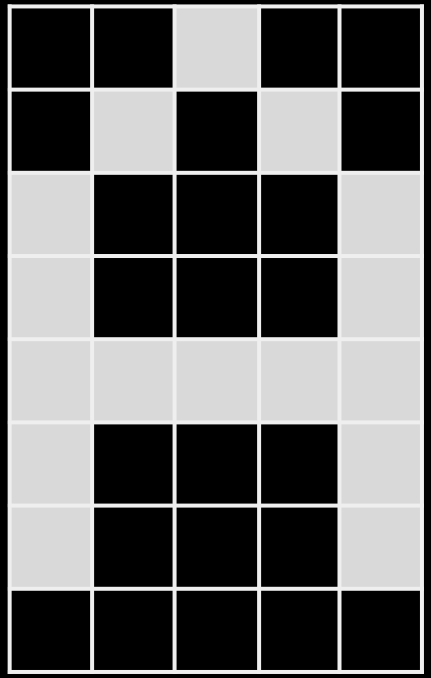

x_start = 0
y_start = 0
x_end = 0
y_end = 0
0 1 2 3 4 5 6 7 8 9
0 1 2 3 4 5 6 7 8 9
1
pixel_values = [1]

BITMAPS

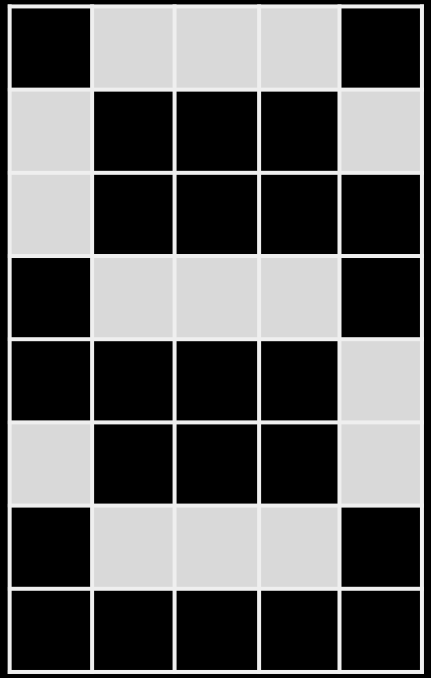

0 1 2 3 4 5 6 7 8 9
0
1
2
3
6
7
8
9
1 1
1 1
pixel_values =
[1, 1, 1, 1]
x_start = 2
y_start = 1
x_end = 4
y_end = 3


0 1 2 3 4 5 6 7 8 9
0
1
4
5
7
8
9
0 1 0
1 1 1
0 1 0
x_start = 2
y_start = 1
x_end = 4
y_end = 3
pixel_values = [0, 1, 0, 1, 1, 1, 0, 1, 0]

LETTERS

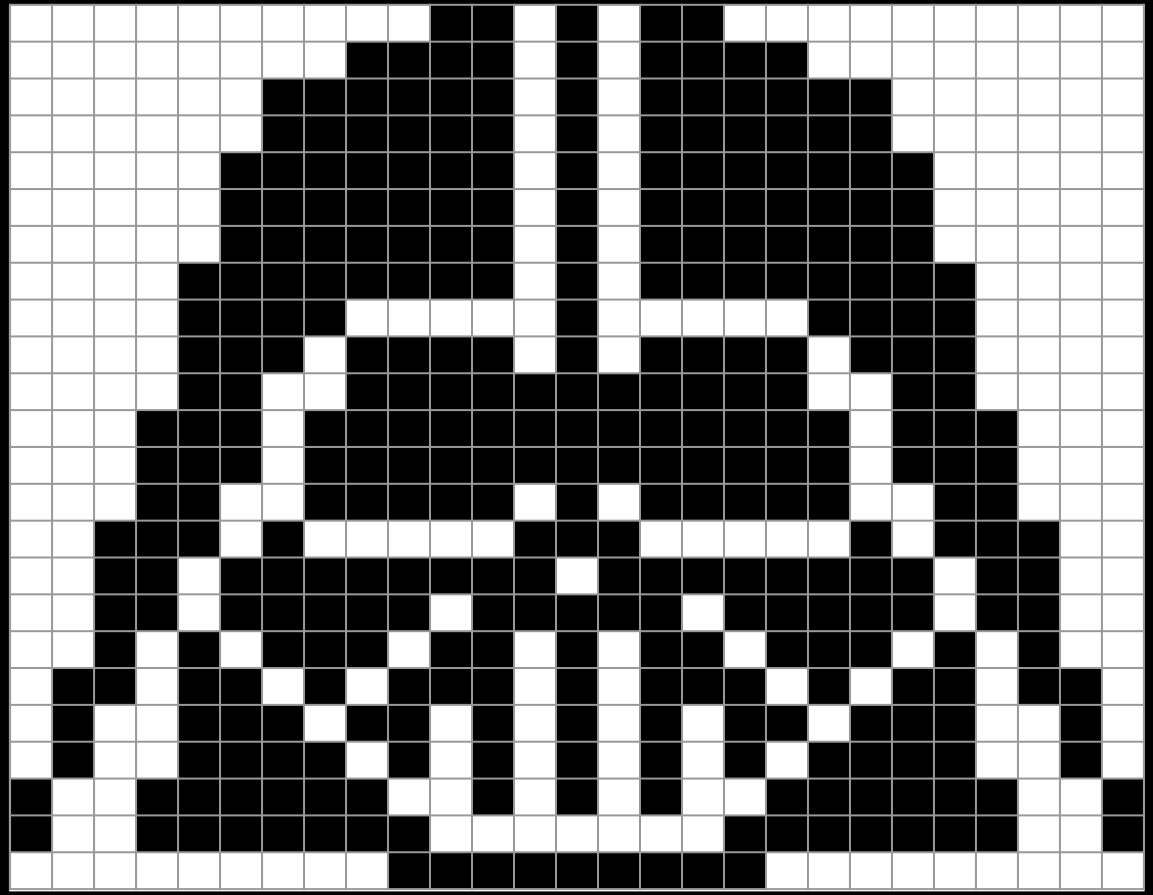


	0	1	2	3	4
0	0	0	1	0	0
1	0	1	0	1	0
2	1	0	0	0	1
3	1	0	0	0	1
4	1	1	1	1	1
5	1	0	0	0	1
6	1	0	0	0	1
7	0	0	0	0	0

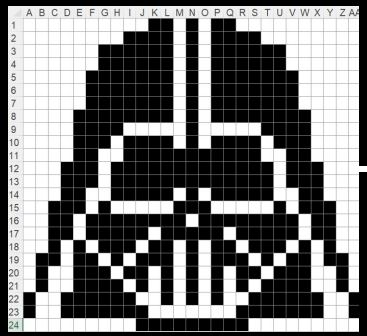


	0	1	2	3	4
0	0	1	1	1	0
1	1	0	0	0	1
2	1	0	0	0	0
3	0	1	1	1	0
4	0	0	0	0	1
5	1	0	0	0	1
6	0	1	1	1	0
7	0	0	0	0	0

FROM IMAGE TO DISPLAY



xlsx



program

binary list

[0, 0, 0, …, 1, 1]

ANIMATION