Pico project week one

Components

ST7789 Display 1.54 inch 240x240
Breadboard
Male - Male jumpers
Momentary push button x 2
Raspberry Pi Pico

Software

CircuitPython Version 7.1.1
Libraries:
adafruit_display_text
adafruit_st7789.mpy

Wiring

Display

VCC	3V3(OUT)
GND	GND
DIN	GP11
CLK	GP10
CS	GP17
DC	GP16
RST	GP18

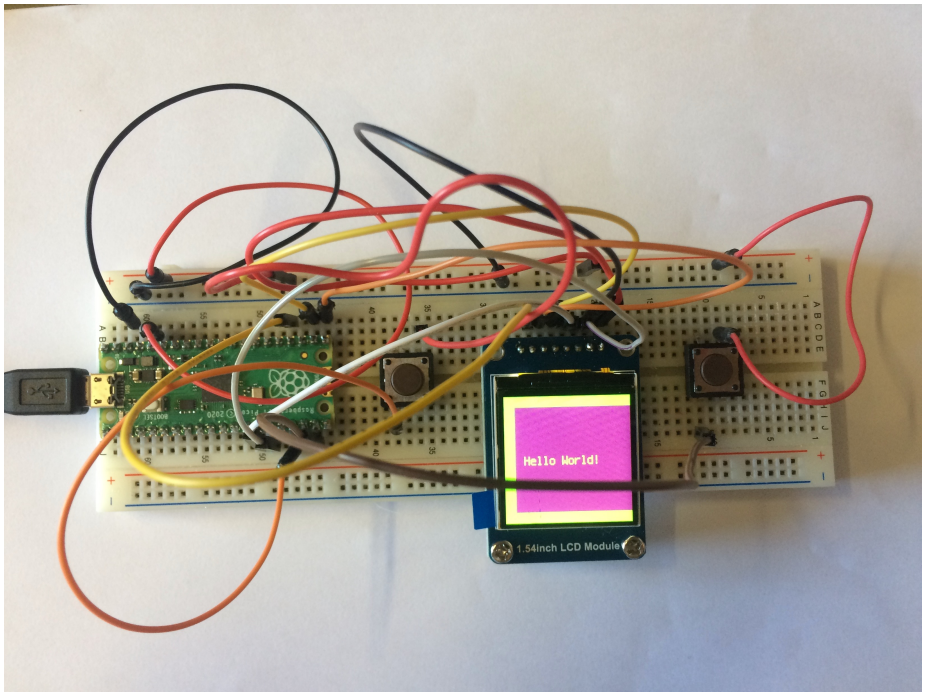
Button one

Top	3V3(OUT)
Bottom	GP13

Button two

Top	3V3(OUT)
Bottom	GP14

Layout



Code

Output
Prints “Hello World!”
Prints to terminal which button pressed

Listing

```
# SPDX-FileCopyrightText: 2021 ladyada for Adafruit Industries
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"""
This test will initialize the display using displayio and draw a solid
green
background, a smaller purple rectangle, and some yellow text.
"""
import board
import terminalio
import busio
import displayio
from adafruit_display_text import label
from adafruit_st7789 import ST7789
import digitalio
import time

# Release any resources currently in use for the displays
displayio.release_displays()

# SPI pins for display st7789
tft_cs = board.GP17
tft_dc = board.GP16

# setup spi bus
spi = busio.SPI(board.GP10, board.GP11)

# setup display
display_bus = displayio.FourWire(spi, command=tft_dc,
chip_select=tft_cs, reset=board.GP18)

display = ST7789(display_bus,
                 width=240,
                 height=240,
```

```
                  rowstart=80,
                  auto_refresh=True)
# Make the display context
splash = displayio.Group()
display.show(splash)

color_bitmap = displayio.Bitmap(240, 240, 1)
color_palette = displayio.Palette(1)
color_palette[0] = 0x00FF00  # Bright Green

bg_sprite = displayio.TileGrid(color_bitmap, pixel_shader=color_palette,
x=0, y=0)
splash.append(bg_sprite)

# Draw a smaller inner rectangle
inner_bitmap = displayio.Bitmap(220, 200, 1)
inner_palette = displayio.Palette(1)
inner_palette[0] = 0xAA0088  # Purple
inner_sprite = displayio.TileGrid(inner_bitmap,
pixel_shader=inner_palette, x=20, y=20)
splash.append(inner_sprite)

# Draw a label
text_group = displayio.Group(scale=2, x=37, y=120)
text = "Hello World!"
text_area = label.Label(terminalio.FONT, text=text, color=0xFFFF00)
text_group.append(text_area)  # Subgroup for text scaling
splash.append(text_group)


buttonOne = digitalio.DigitalInOut(board.GP13)
buttonOne.switch_to_input(pull=digitalio.Pull.DOWN)

buttonTwo = digitalio.DigitalInOut(board.GP14)
buttonTwo.switch_to_input(pull=digitalio.Pull.DOWN)

while True:
    print("button one: ",buttonOne.value)
    print("button Two: ",buttonTwo.value)
    time.sleep(0.5)
```