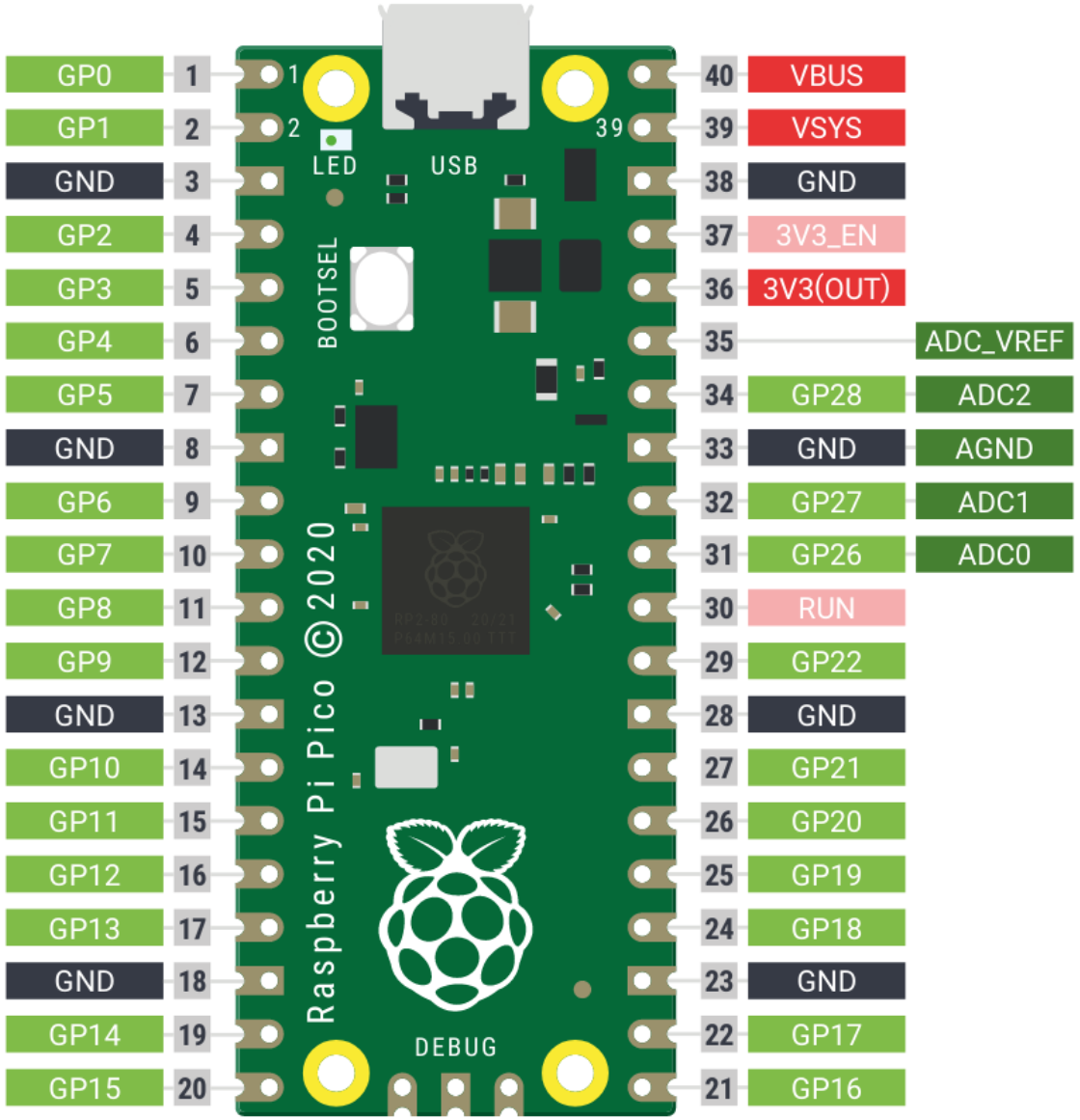
ROBOTICS FROM SCRATCH

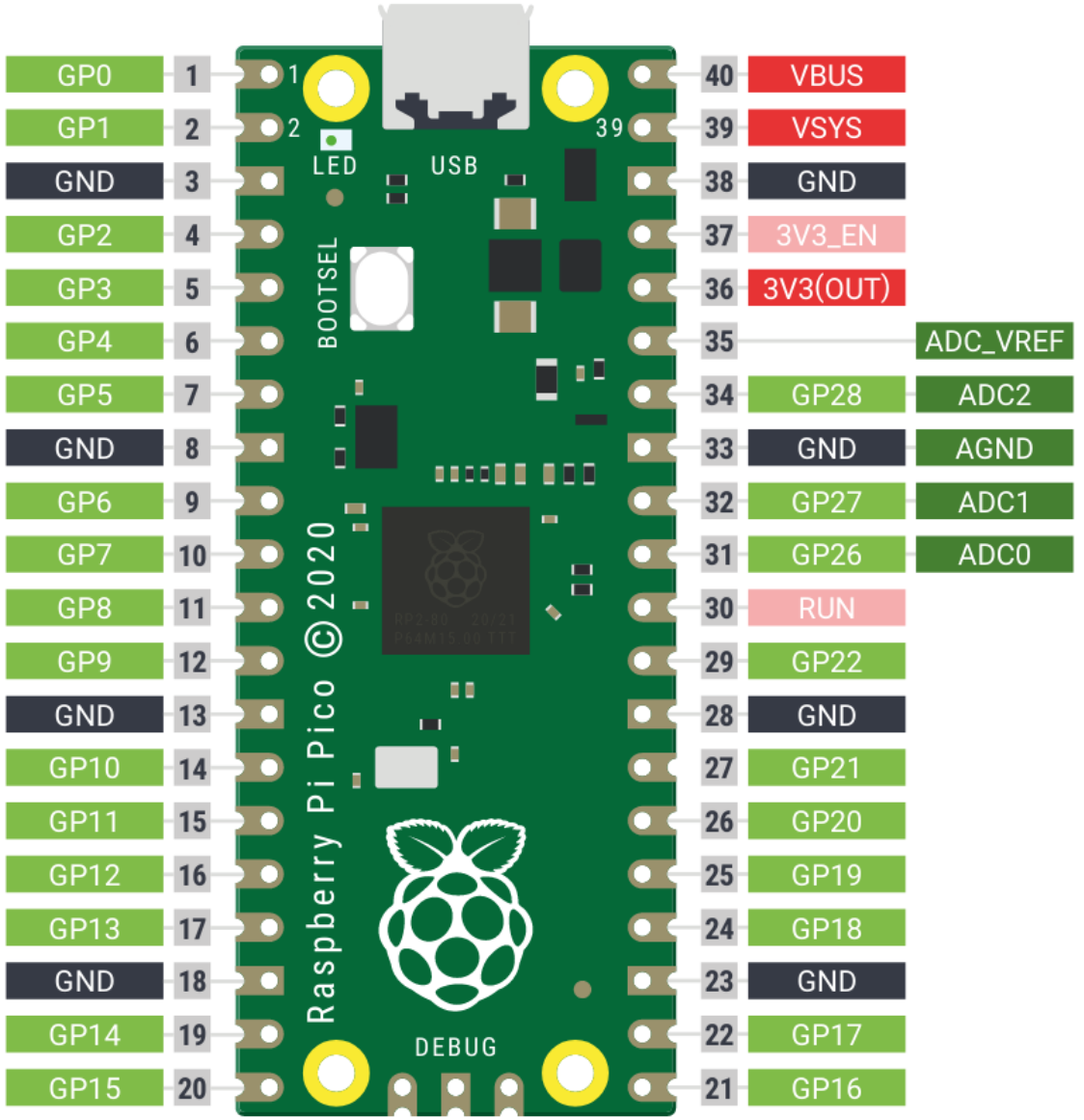
Raspberry Pi Pico Basics

- 26 GPIO pins (General Purpose Input/Output)
- 3 analog inputs (ADC)
- 16 PWM channels
- Runs on 3.3V



Raspberry Pi Pico Basics

- We feed in ~5V on VSYS
- We can get 3.3V Out from 3V3(OUT) for powering other things

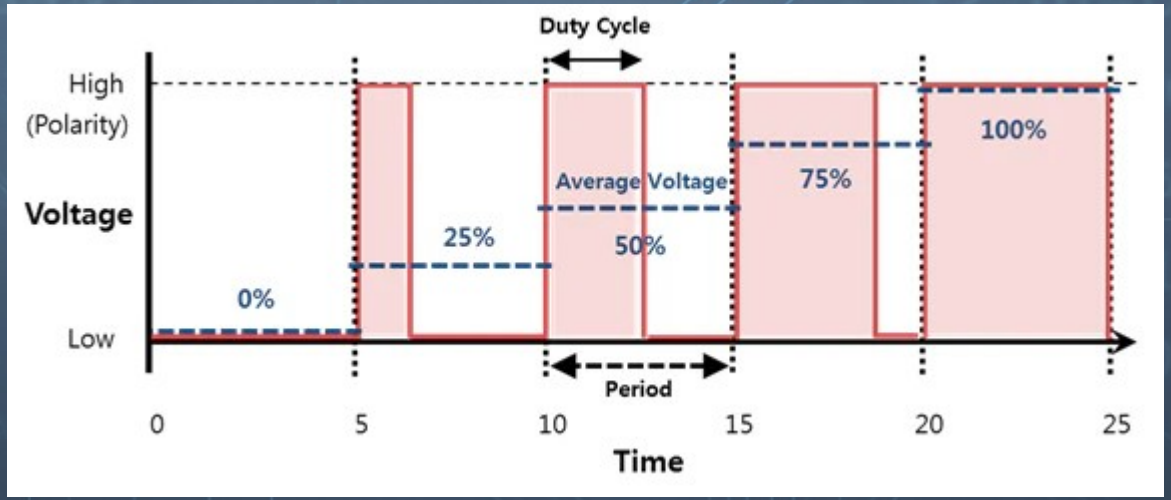


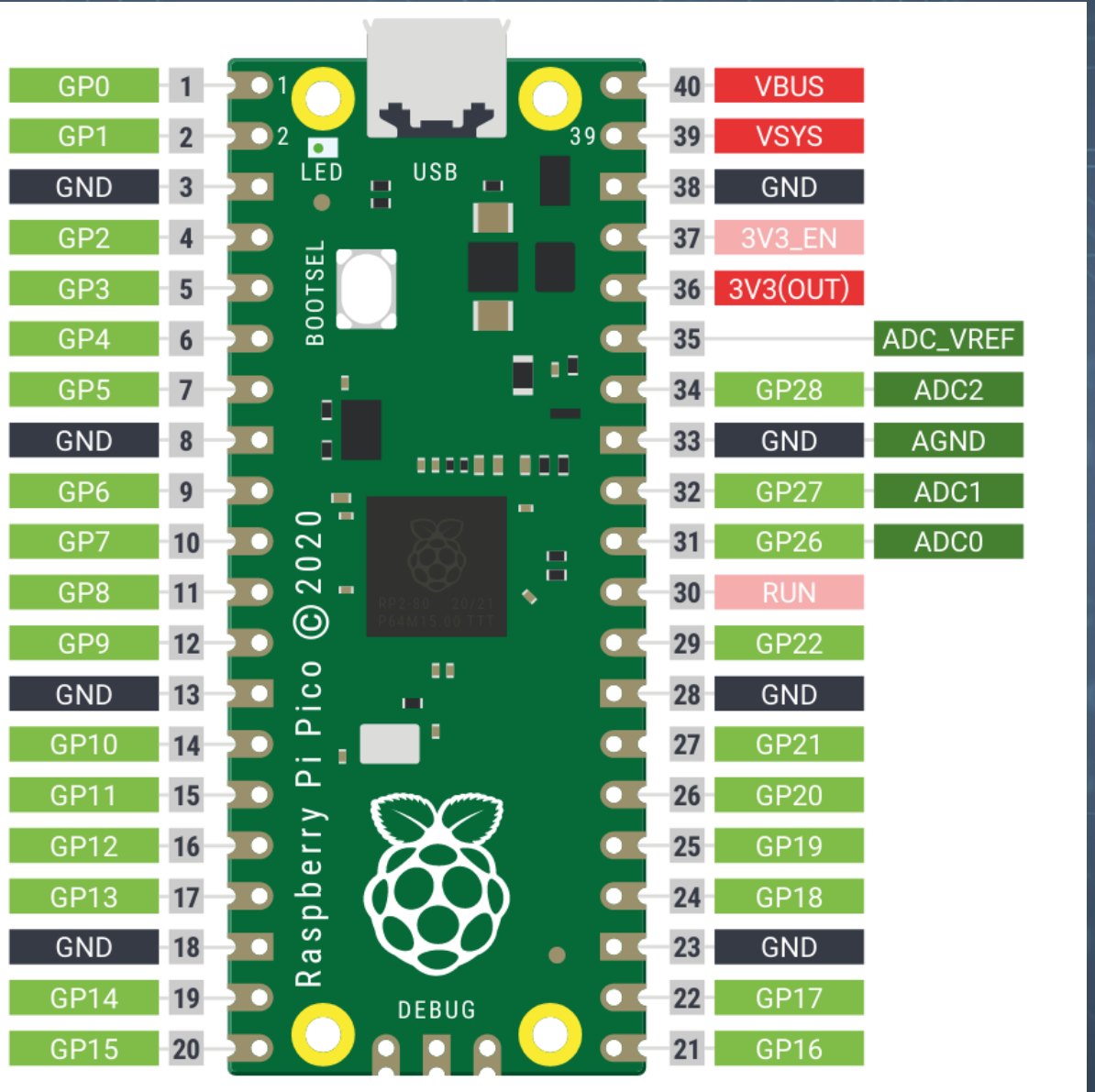
Raspberry Pi Pico Basics

- GPIO Pins are General Purpose Input Output Pins
- These can be set to either Input or Output. They can be changed at will, but can only be one or the other at any given time.
- When set to Output, they can set to High (1, True) or Low (0, False). When high, they output 3.3V. When low than can take in, or sink, 3.3V. They act like a switch in output mode.
- In Input mode, you read them and they will tell you their state: whether or not voltage is applied to them.

Raspberry Pi Pico Basics

- Analog pins allow you to read the actual voltage applied to the pin, not just high or low. They can read from 0V – 3.3V.
- PWM stands for Pulse Width Modulation. It outputs pulses of varying width. This can simulate different voltages, control motor speeds, dim LEDs, etc.




GP0 1
GP1 2
GND 3
GP2 4
GP3 5
GP4 6
GP5 7
GND 8
GP6 9
GP7 10
GP8 11
GP9 12
GND 13
GP10 14
GP11 15
GP12 16
GP13 17
GND 18
GP14 19
GP15 20
1
2
39
LED
USB
BOOTSEL
Raspberry Pi Pico ©2020
DEBUG
40 VBUS
39 VSYS
38 GND
37 3V3_EN
36 3V3(OUT)
35 ADC_VREF
34 GP28 ADC2
33 GND AGND
32 GP27 ADC1
31 GP26 ADC0
30 RUN
29 GP22
28 GND
27 GP21
26 GP20
25 GP19
24 GP18
23 GND
22 GP17
21 GP16