

ECE 476/676 - Homework #10

GPS Sensors, NeoPixels

How Fast Can I Run?

Design an embedded system which uses the GPS to measure how fast you can run.

- The Pi-Pico reads the GPS sensor to pull out
 - The current time, and
 - Your current speed in mph
- When you press GP15 or tap the touch screen, your maximum speed is recorded over the next 10 seconds
- After 10 seconds, the LCD and NeoPixel are updated. The NeoPixel displays a color based upon your speed:
 - Blue: 1st place Fastest recorded speed
 - Red: 2nd place Second fastest
 - Yellow 3rd place Third place
 - Off other

How Fast Can I Run?

Time	3:23:06
Speed	6.2 mph
1st	5.7 mph
2nd	4.3 mph
3rd	2.6 mph

The LCD display should show

- The current time (from the GPS sensor)
- Your current speed (from the GPS sensor), and
- The top three speeds recorded since reset

Grading:

- 10pt Able to read the GPS sensor to get the current time
- 10pt Current time displayed on the LCD
- 10pt Able to read the GPS sensor to get your current speed
- 10pt Current speed displayed on the LCD
- 10pt Able to start a new measurement with GP15 or tapping the touch screen
- 10pt Top-3 speeds displayed on the LCD display
- 10pt NeoPixel displays a color based upon your place
- 10pt Demo. Video or in person