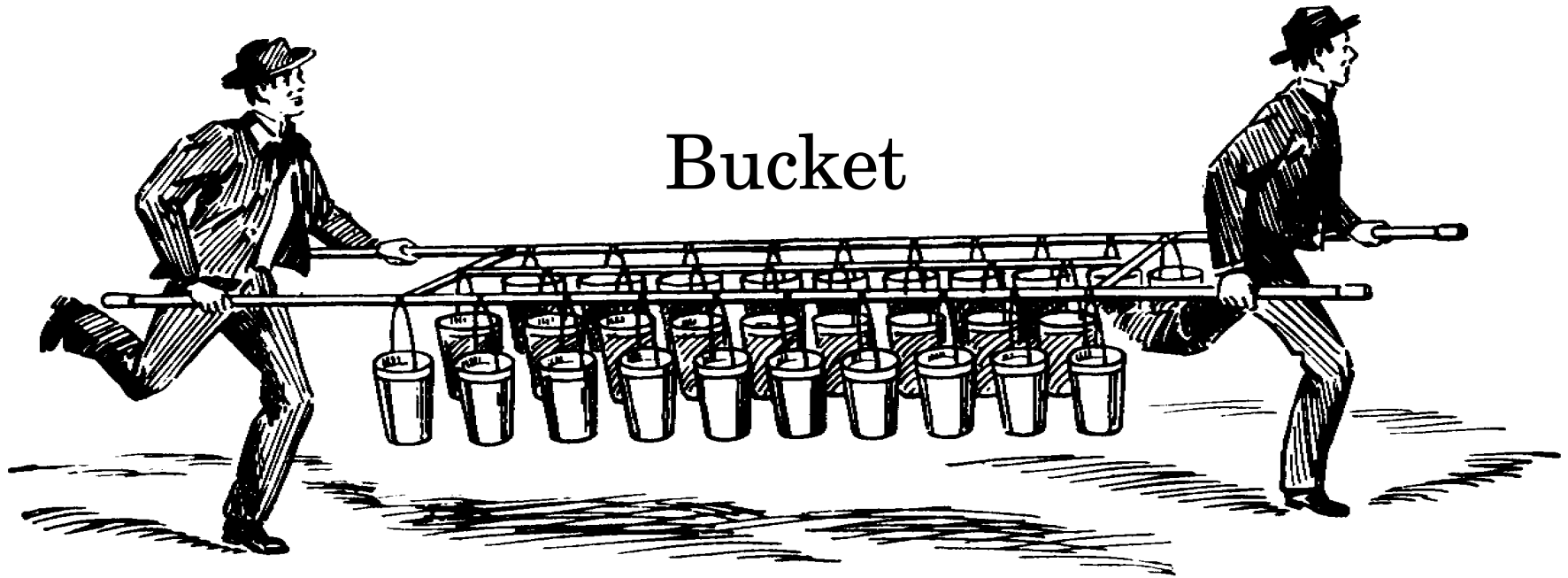


Bucket

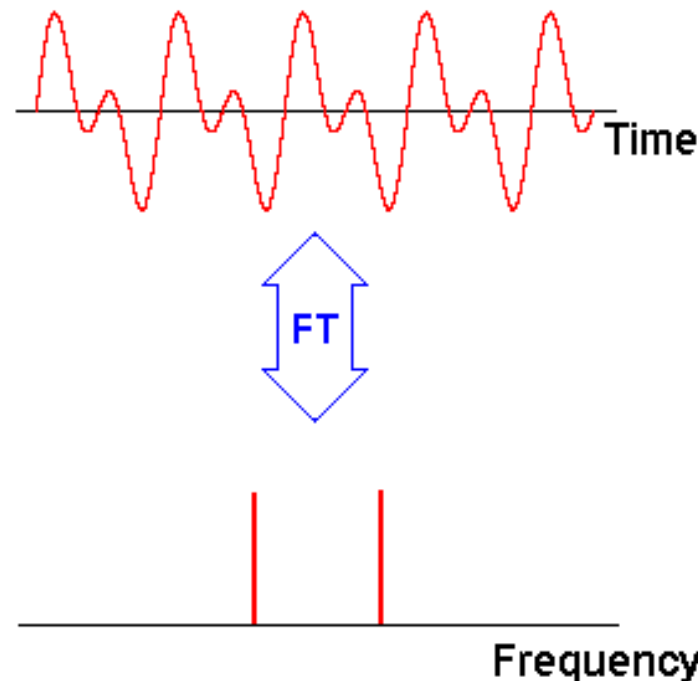


Brigade

PROJECT

*A Fourier transform **is***

.... a way to convert a signal
from
its original domain (parameter over time)
to
a representation in the frequency domain
(**and vice versa**).

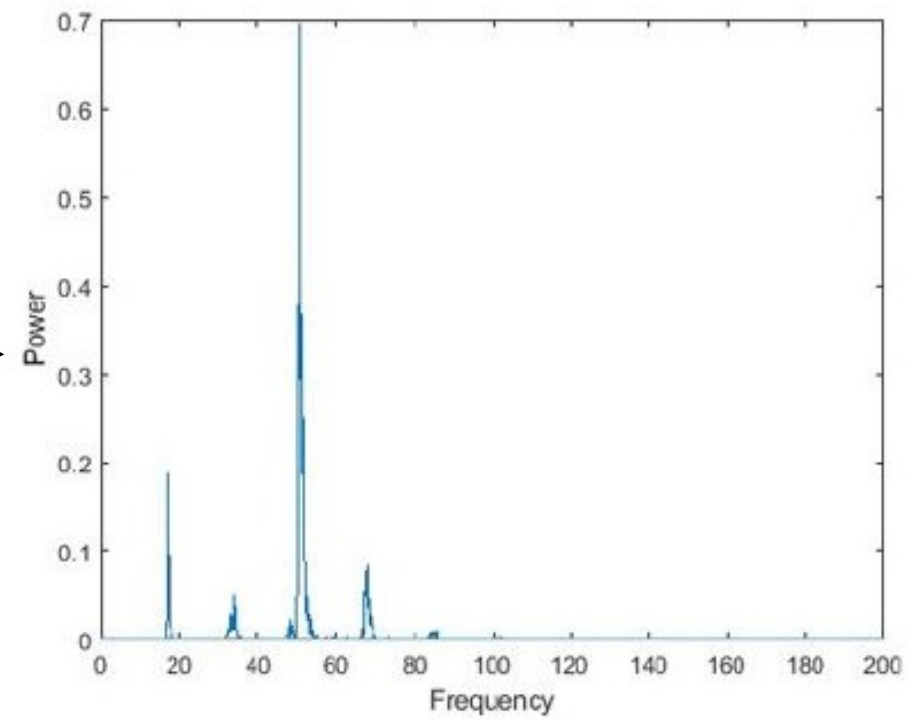
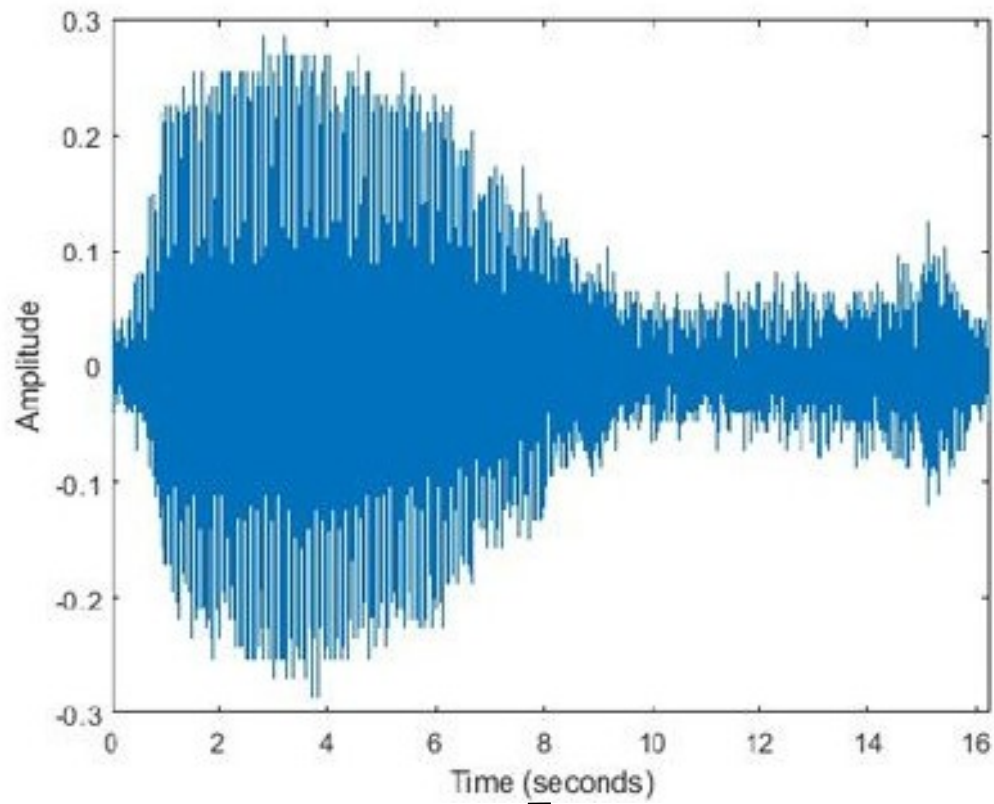


A Fourier transform is

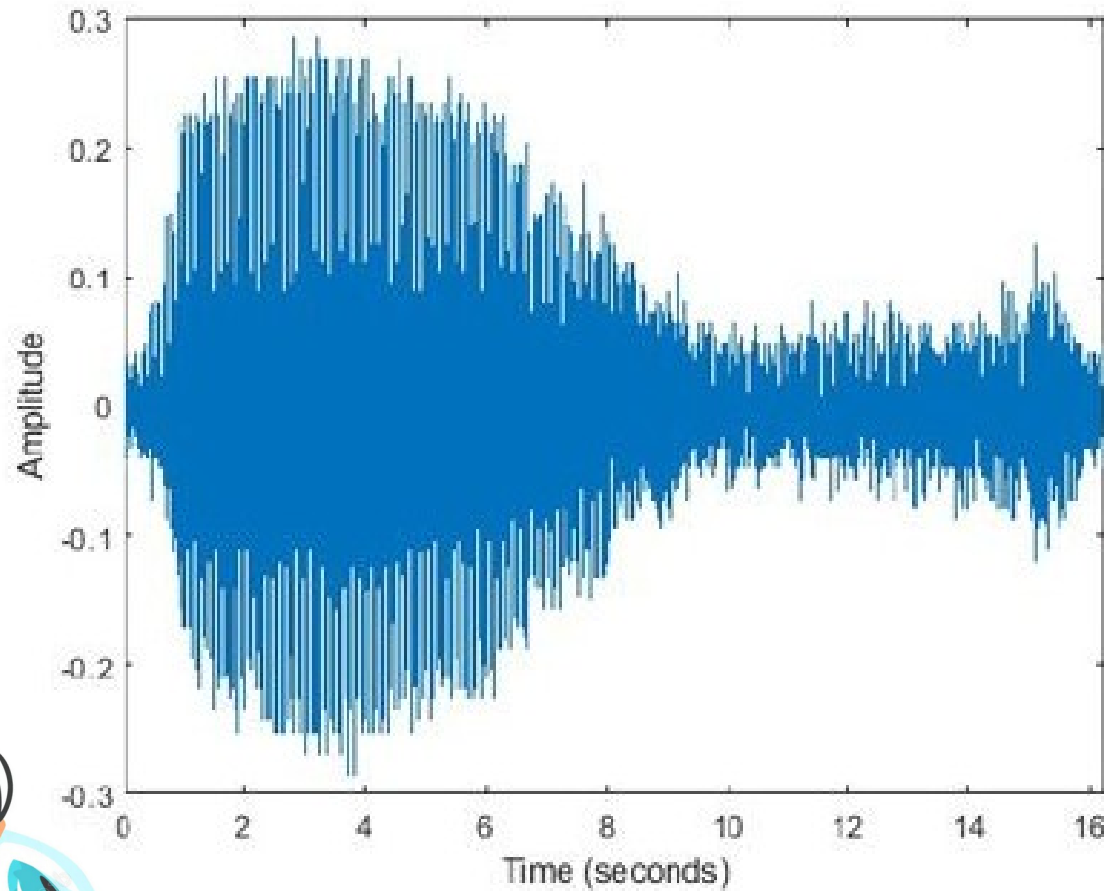
$$F(\omega) = \int_{-\infty}^{\infty} f(t) e^{-j\omega t} dt$$

OR

$$X(k) = \sum_{n=0}^{N-1} x(n) e^{-j2\pi kn/N}$$

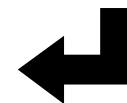


SIGNAL SAMPLE



**Identify
Max and Min**

1

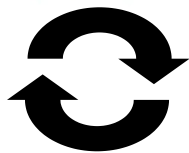


**Build
Count
Buckets**

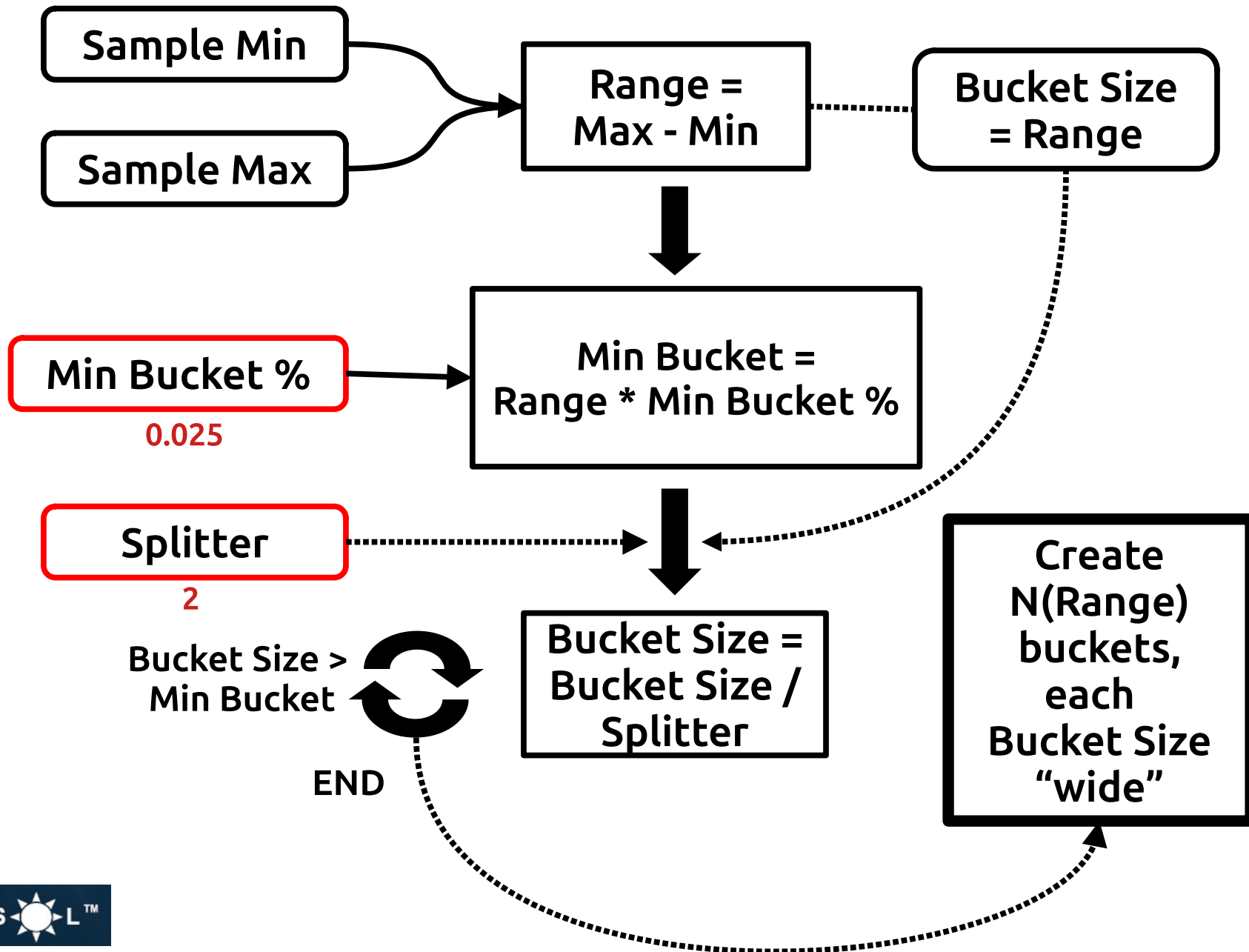


**Fill
Count
Buckets**

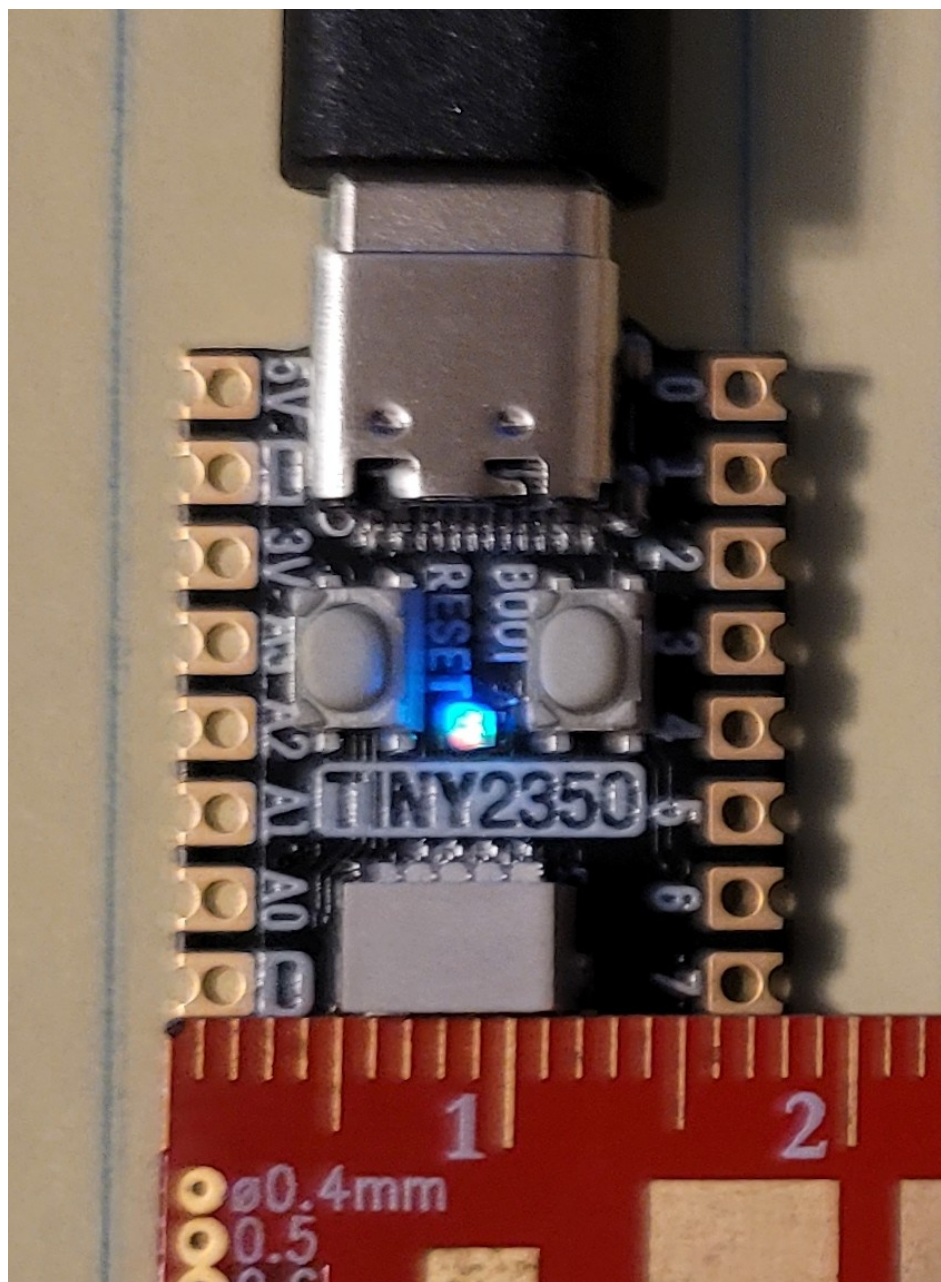
2

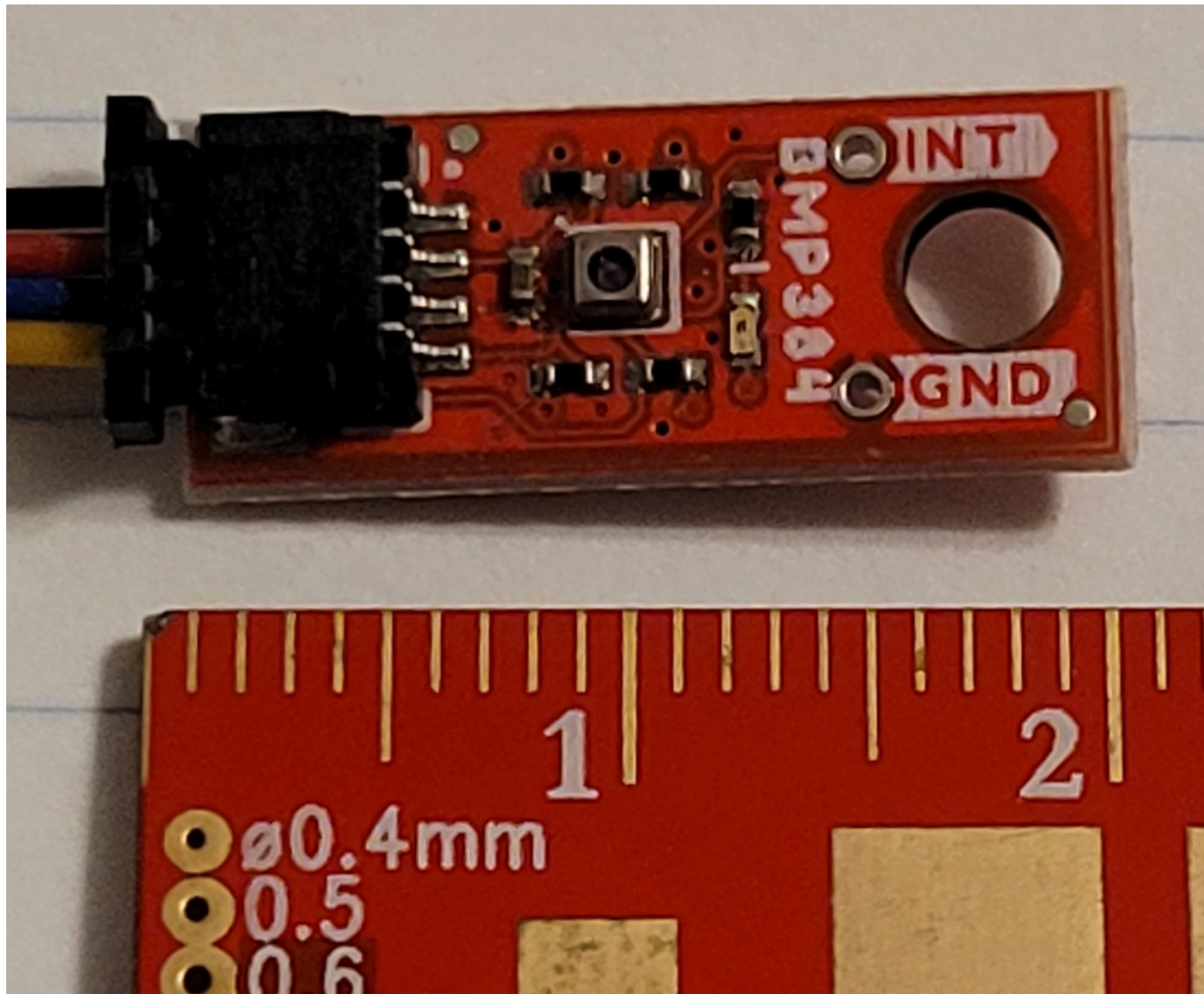


Build Count Buckets



**DEMO
TIME**





Temp: -40 to 185 F

Air Press : 300 to 1250 millibars

APPLICATIONS

- **Fuzzy Control**
 - Membership functions
 - Convert adjacent interval groups into fuzzy term for a condition
- **Preventive Maintenance**
 - Interval patterns
 - Designate interval spectrum as state health
 - Spectrum A – normal condition
 - Spectrum B – low level of degradation
 - Spectrum C – replacement recommended

- Open source BucketBrigade

- Blog + site
- GitHub repository
- Contributors

- Spectrum Libraries

- Domain Specific
- Open Libraries
- Private Libraries

- Applications



QUESTIONS