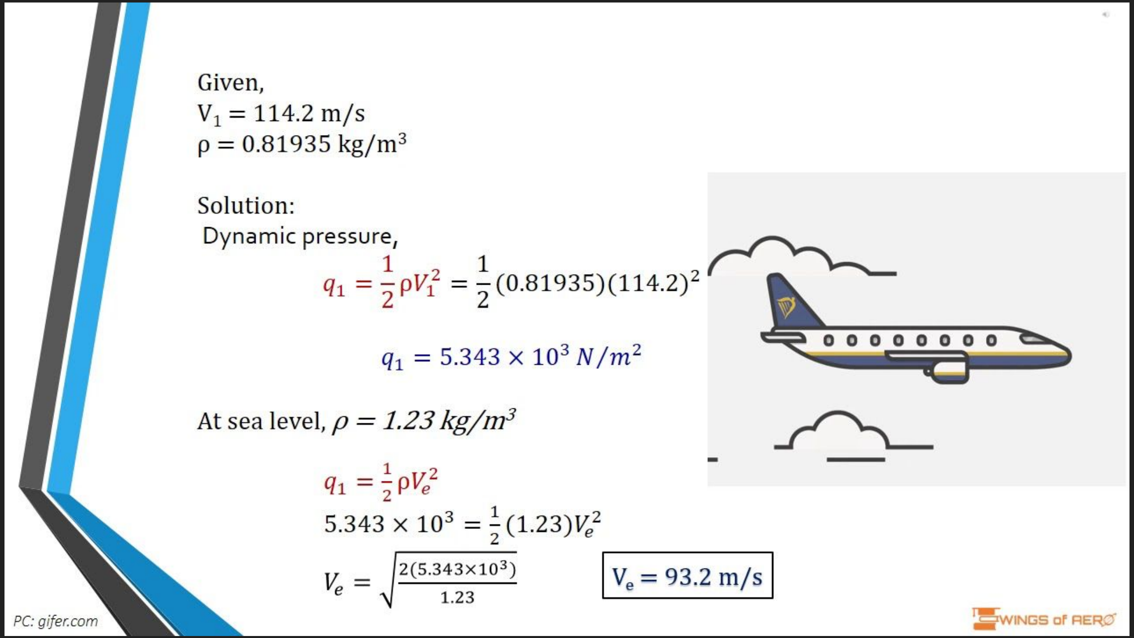

Find the speed of ISS

Ideas

1. Pressure
2. Perspective n point(PnP)
3. Green’s theorem
4. Humidity
5. IMU



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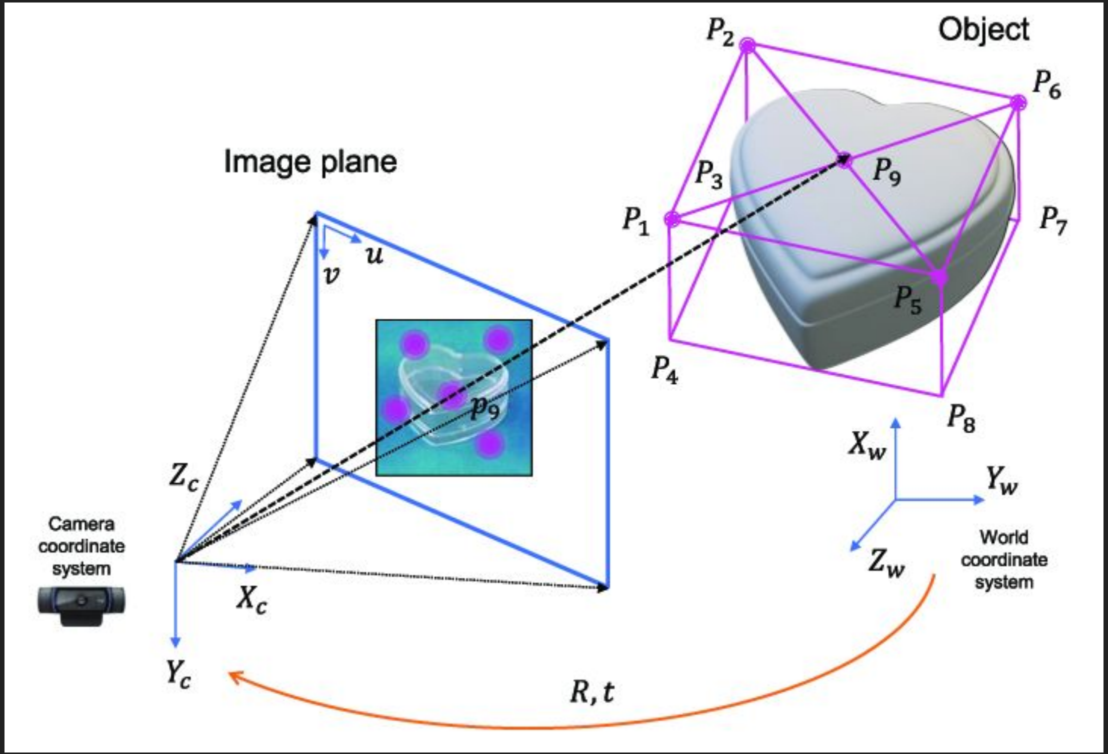

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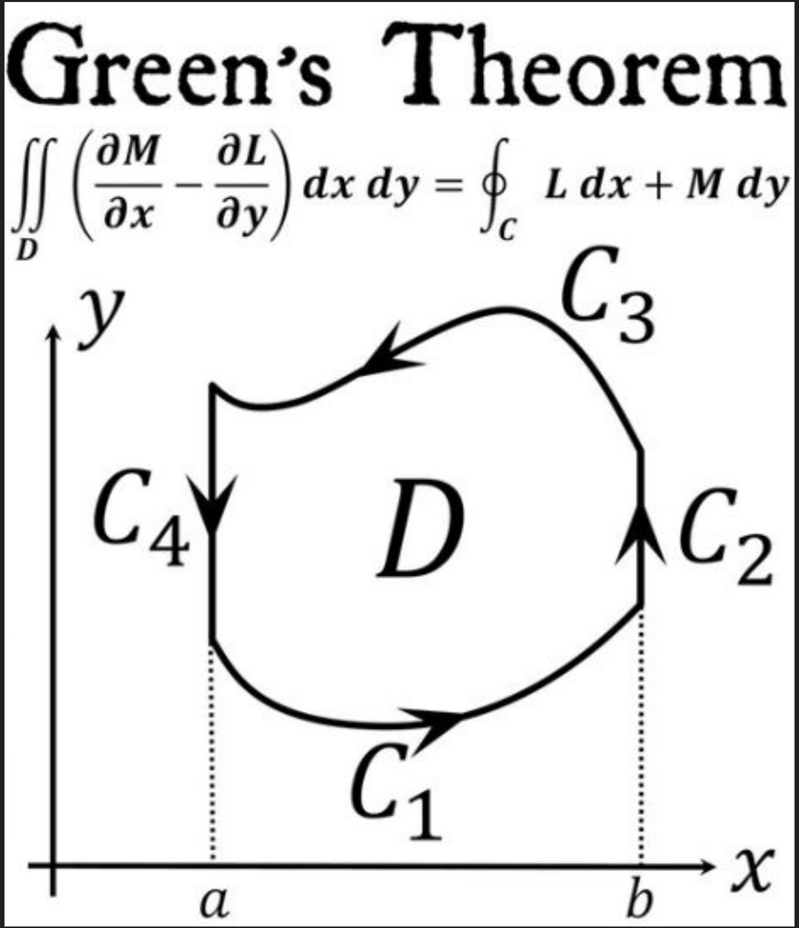

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$$v = \sqrt{\frac{\gamma P}{\rho}}$$

But $\rho = \dfrac{M}{V}$

Therefore,

$$v = \sqrt{\frac{\gamma P V}{M}}$$

Using equation (11.26)

$$v = \sqrt{\frac{\gamma R T}{M}}$$

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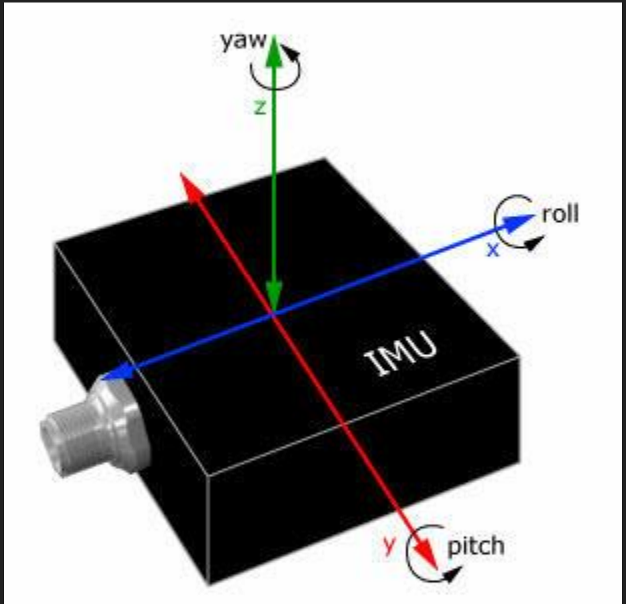
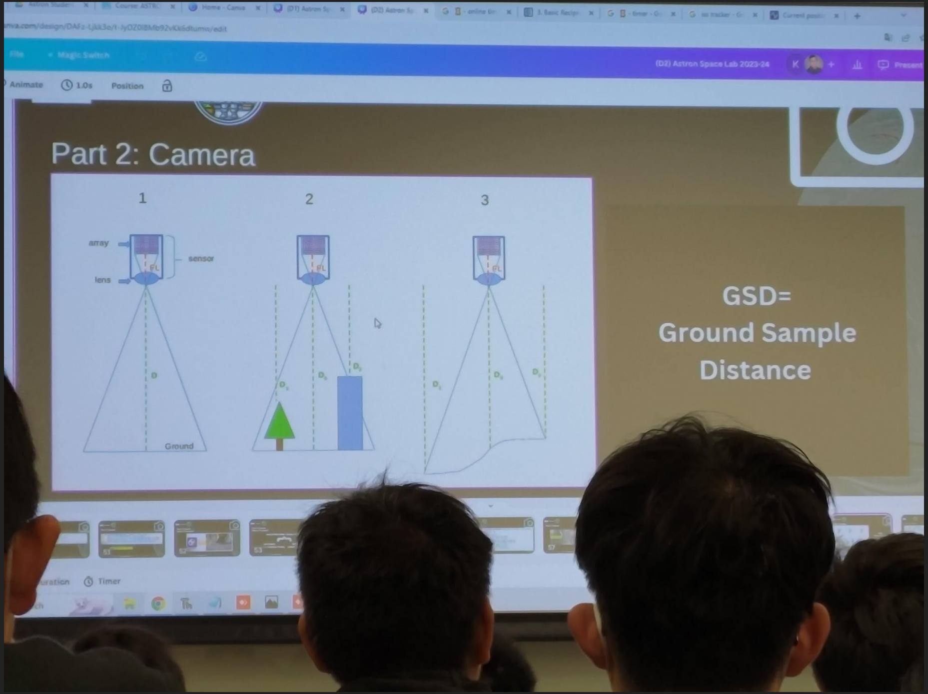


But they all fail!!!

1. The pressure for ISS is too stable
2. We don’t exactly know those six forces in ISS to do the PnP
3. Green’s theorem relates to circulation and flux integrals in vector calculus
4. It relates to the water vapour speed
5. Too difficult and ordinary

Photo (Ground Sample Distance)

- Calculating the data by using the photo collected
- Succeed!!!
- Use as an alternative way
- No innovative enough

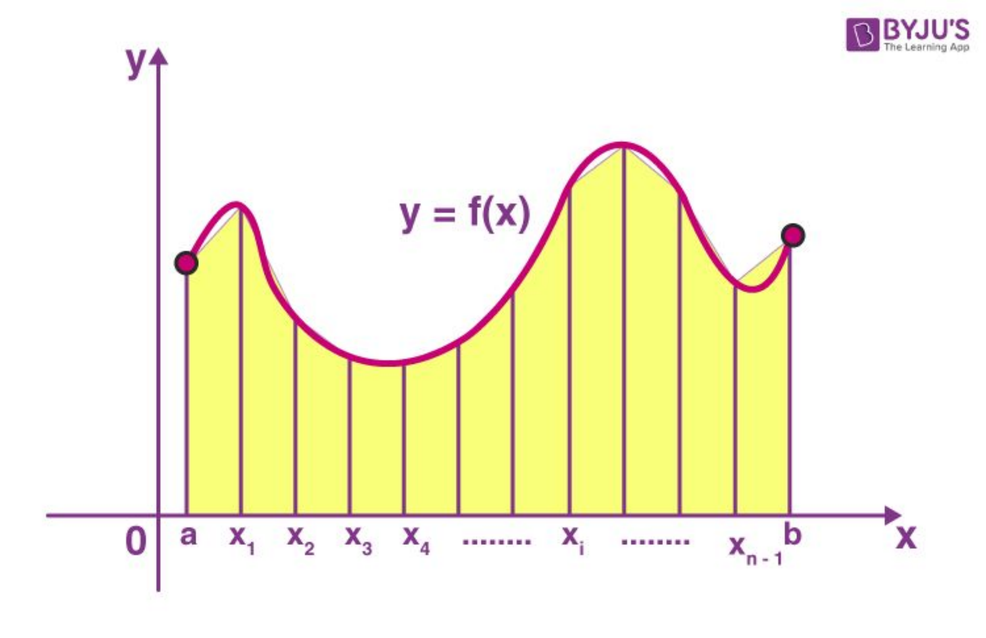


Accelerator

- Face a looooooooooooooooooooooooooot of problems in coding
- Finally success by using accelerator!!!!! T^T
- Accurate enough

Trapezoidal rule and Kalman filtering

- Convert acceleration into velocity by using integration
- dv/dt = acceleration
- To filter the needless code



How to make it more accurate?

Add two data together and divide them by two!

Finally two succeed!!!

Thank you