Avionics - satellites to drones

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Meet the NASA IV&V Summer Interns of 2017
Meet the IV&V Summer Interns of 2017

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What is IV&V anyway?

Independent

Verification &

Validation
Notable Core Flight System software projects
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- SAMPEX
- SWAS
- TRACE
- WIRE
- SMEX-Lite
- XTE
- Triana/DSCOVR
- TRMM
- JWST ISIM
- Swift BAT
- ST-5
- MAP
- IceSat GLAS
- Probe
- MMS
- Parrot AR Drone
- SDO
- LRO
- GPM
- LADEE
Parrot AR Drone 2.0
Retail price $199
1 GHz ARM Cortex processor
Command line Linux OS
3 axis accelerometer
3 axis gyroscope
WiFi connection
3 weeks later..

It’s not responding. Why isn’t it responding.
Success!

Enjoy the small things.
It flies!

Now what?
Make it fly better

Original Goal

Main
If (attitude command waiting)
Set attitude

Stretch Goal

Main
If (attitude command waiting)
Set attitude
If (attitude not level)
Reduce attitude
Make it fly more better

Original Goal

Main
If (attitude command waiting)
Set attitude

Stretch Goal

Main
If (attitude command waiting)
Set attitude
If (attitude not level)
Reduce attitude

Super Stretch Goal

Main
If (attitude command waiting)
Set attitude
If (attitude not level)
Reduce attitude
Else if (commands in queue)
Pop, set attitude
Make it useful
Make it useful
What’s next?
Questions?