JAVASCRIPT IN SPACE

OR, THERE AND BACK AGAIN

Dan Harden - @dharden

- Kickstarting your own space program
- Explosions
- Delicious, delicious failure
- Ham radio
- JavaScript


SPACE IS SO COOL

HIGH-ALTITUDE BALLOONING

- Balloons released into the stratosphere
- Launched into "near space"
- Equipped with sensors, cameras, etc.


HACKATHON

THE PLAN

- We want to send a balloon really really high
- We want to collect some data
- We want to get it back

THE PROBLEMS

- How do we get up there?
- How do we get data?
- How the heck do we find it?

HOW DO WE GET UP THERE?

It's a balloon, you just kind of let it go

SOLVED

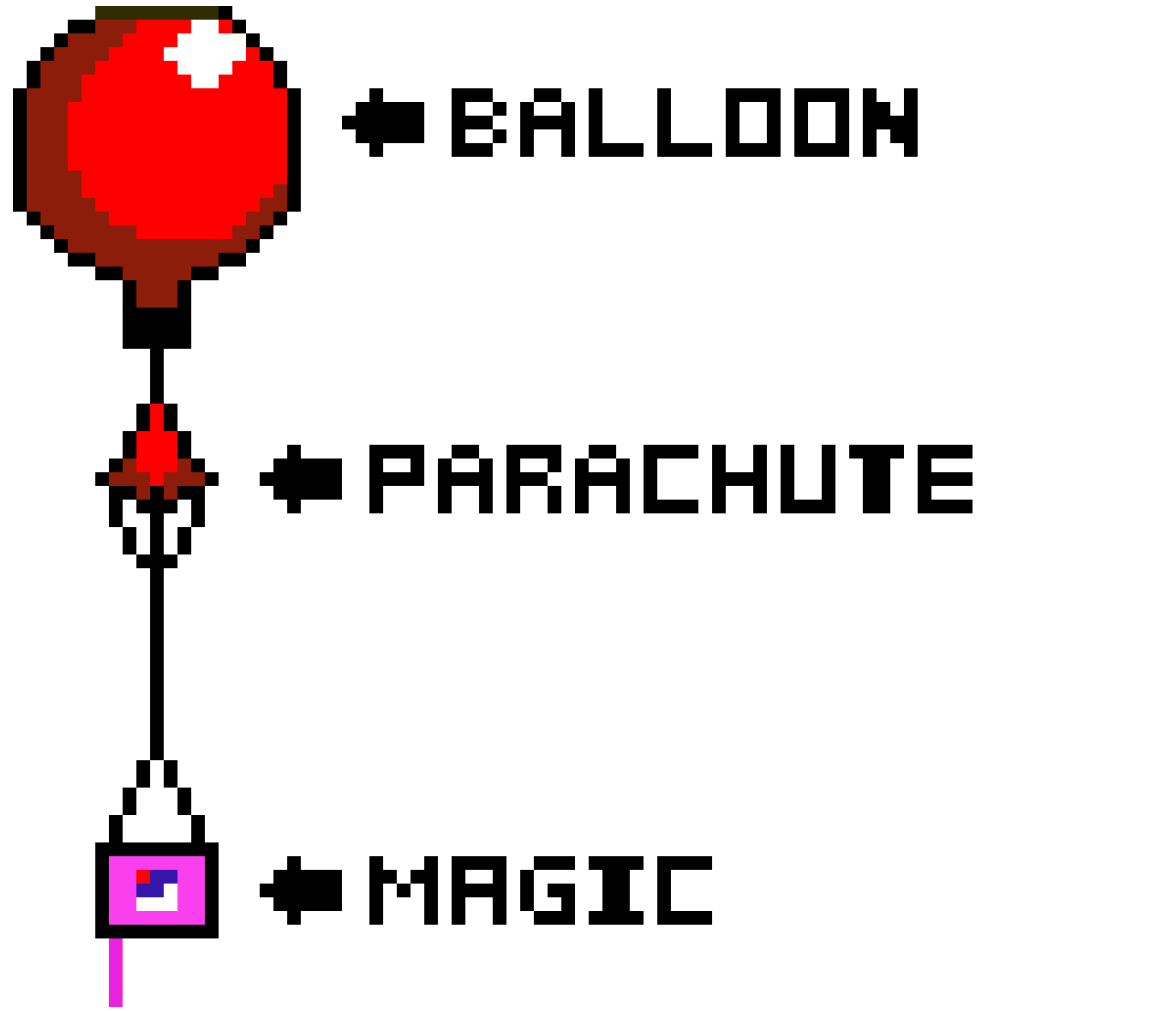
HOW DO WE GET DATA?

Maybe just strap a GoPro to it?

Sub-problem: what is the terminal velocity of a GoPro?

HOW DO WE GET IT BACK?

Maybe just strap a hiking GPS to it?


BALLOON
PARACHUTE
MAGIC


Nyanpollo V1 - Parachute Test 1


Nyanpollo V1 - Parachute Test 2

¯_(ツ)_/¯


WELL, NOW WE HAVE
SOME TIME.

Trackuino

The Arduino APRS tracker

irmware for Trackuino, an open-source APRS tracker based on the Arduino platform. It was designed
ltitude b lloo s, s t h s ther h dy f atu s lik re dir g te np ratu s en ors a d a b zer for aco

s intended for use by licensed radio amateurs.

ures

o shield form factor (you can stack more shields on it)
enus 638FLPx. Reports okay above 18 Km.
Radiometrix's HX1 (300 mW).
auds AFSK using 8-bit PWM
out standard APRS position messages (latitude, longitude, altitude, course, speed and time).

SIDEQUEST: HOW DO WE YOU GET A HAM RADIO LICENSES?

- The entry level license is called Technician
- You have to pass a 35-question multiple-choice test
- ????
- Maybe buy a ham radio?

As in the real examination, do not forget to **check your paper** before you submit it for marking, there is no time limit within which the paper has to be completed, so do not feel compeled to rush through. Any illustrations required for a particular question will be shown below that question. If you have a text based browser, you should consult a copy of these illustrations, which are available from the ARRL.

Q 1: Which of these precautions should be taken when installing devices for lightning protection in a coaxial cable feed line?

(T0A07)

- A. Include a parallel bypass switch for each protector so that it can be switched out of the circuit when running high power.
- B. Include a series switch in the ground line of each protector to prevent RF overload from inadvertently damaging the protector
- C. Keep the ground wire from each protector separate and connected directly to station ground
- D. Ground all of the protectors to a common plate which is then connected to an external ground.

Q 2: Which of the following establishes grounding requirements for an amateur radio tower or antenna?

(T0B11)

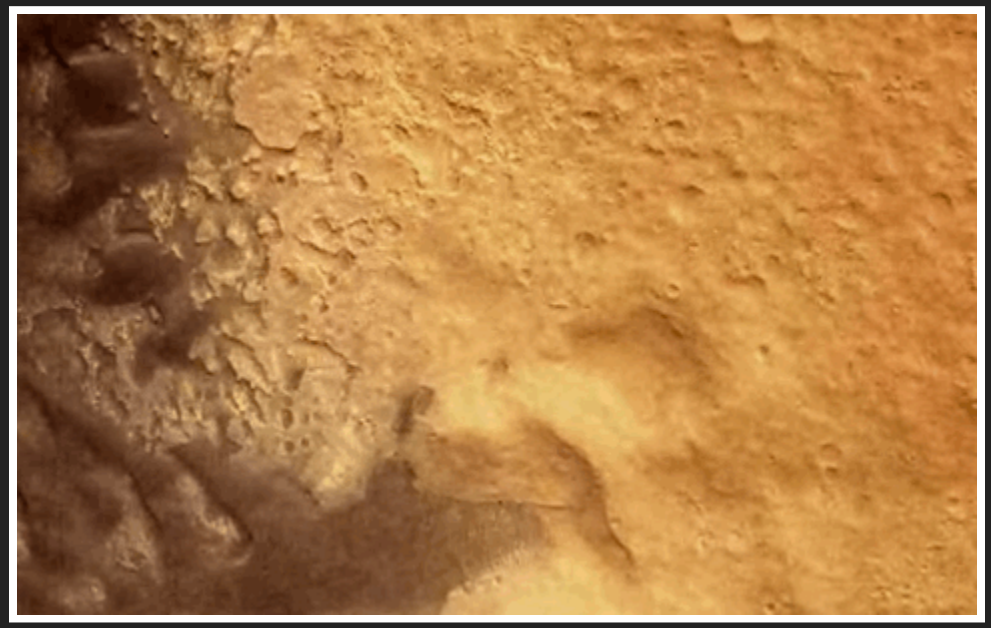
- A. FCC Part 97 Rules.
- B. Local electrical codes.
- C. FAA tower lighting regulations.
- D. Underwriters Laboratories' recommended practices.

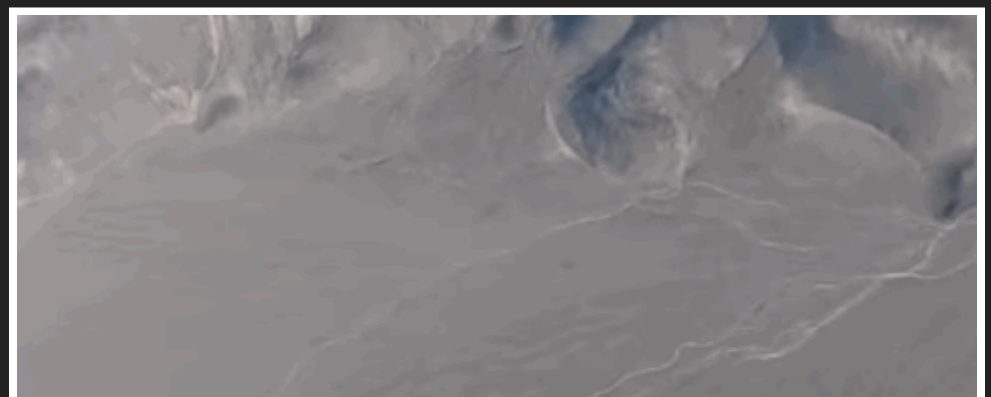
Q 3: How does RF radiation differ from ionizing radiation (radioactivity)?

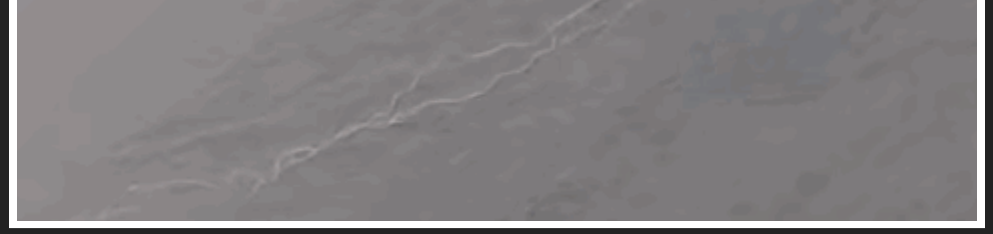
(T0C12)

Johnny-Five

http://makenai.net/nyanpollo-player/







WHAT DID WE LEARN?

- Failure can be a good thing
- You can use JavaScript for all kinds of crazy shit
- Space is closer than ever!
- The world is not flat

THANK YOU!

<3, @dharden

shoutouts (may or may not be actual handles)

@smartlola
@dendro - @e$ - @jowyong - @bchatla
@thaiwoodhere - @makenai - @debugish
@aki - @jennschiffer - @bkirkby - @revealjs - @wikipedia
floating effect by @djsbaker

QUESTIONS?