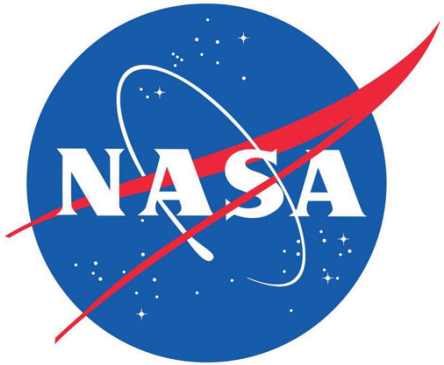


NASA SPACE APPS CHALLENGE 2017

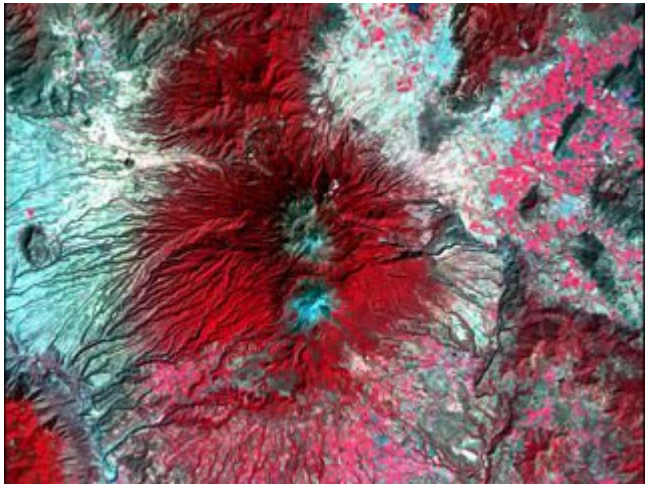
Project #uRADMonitor

https://github.com/radhoo/NasaSpaceAppsTM.git

Hackaday Prize 2015 Finalist

1/10 chances for a trip to space

http://www.uradmonitor.com/tag/hackaday-prize-2015/



Warning! Danger Ahead!

Challenges in this category will ask you to analyze NASA data to assist in monitoring natural disasters and phenomena associated with health risks, and to assess their impacts on life and property.

And YOU can Help Fight Fires!

Build a fire-monitoring and crowdsourcing tool that will allow local fire managers to respond to wildfires

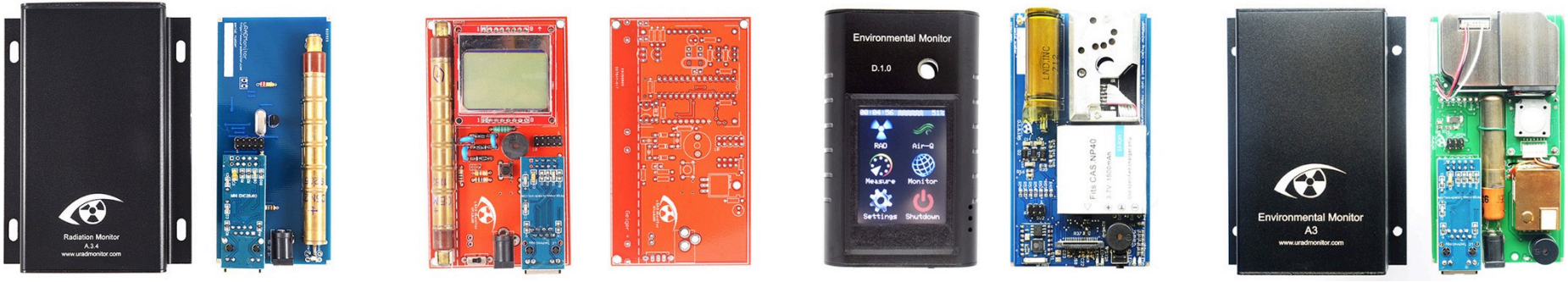
Mayday, Mayday, Mayday!

Calculate and visualize the radiation exposure for an actual or hypothetical polar, or near-polar flight!

Live Smart

Evaluate environmental, social, and economic data to design tools and plan blueprints for smart and connected rural and urban settlements.

The uRADMonitor network

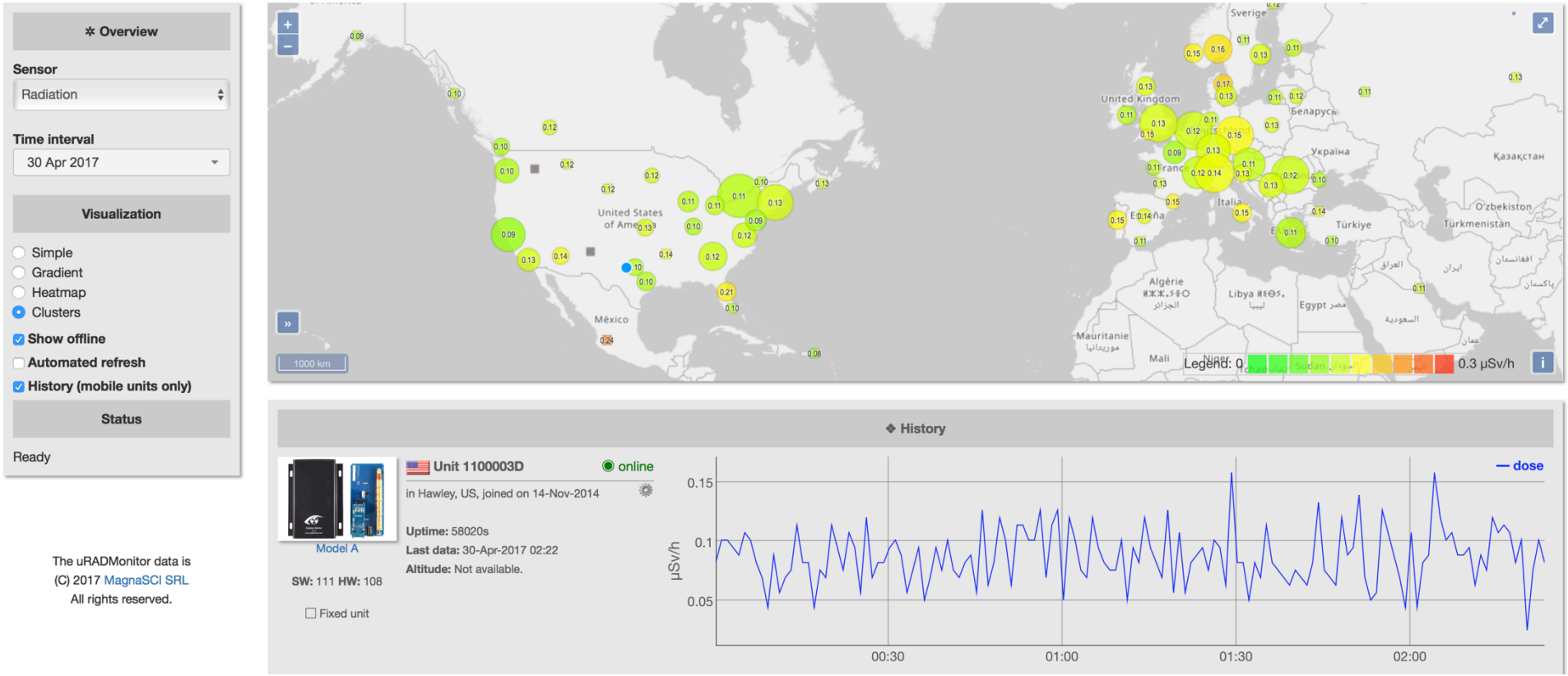


uRADMonitor is a global network of IOT hardware devices of proprietary design, equipped with advanced sensors to assert the quality of the environment in real time. There +600 units in more than 40 countries.

Solving the challenges

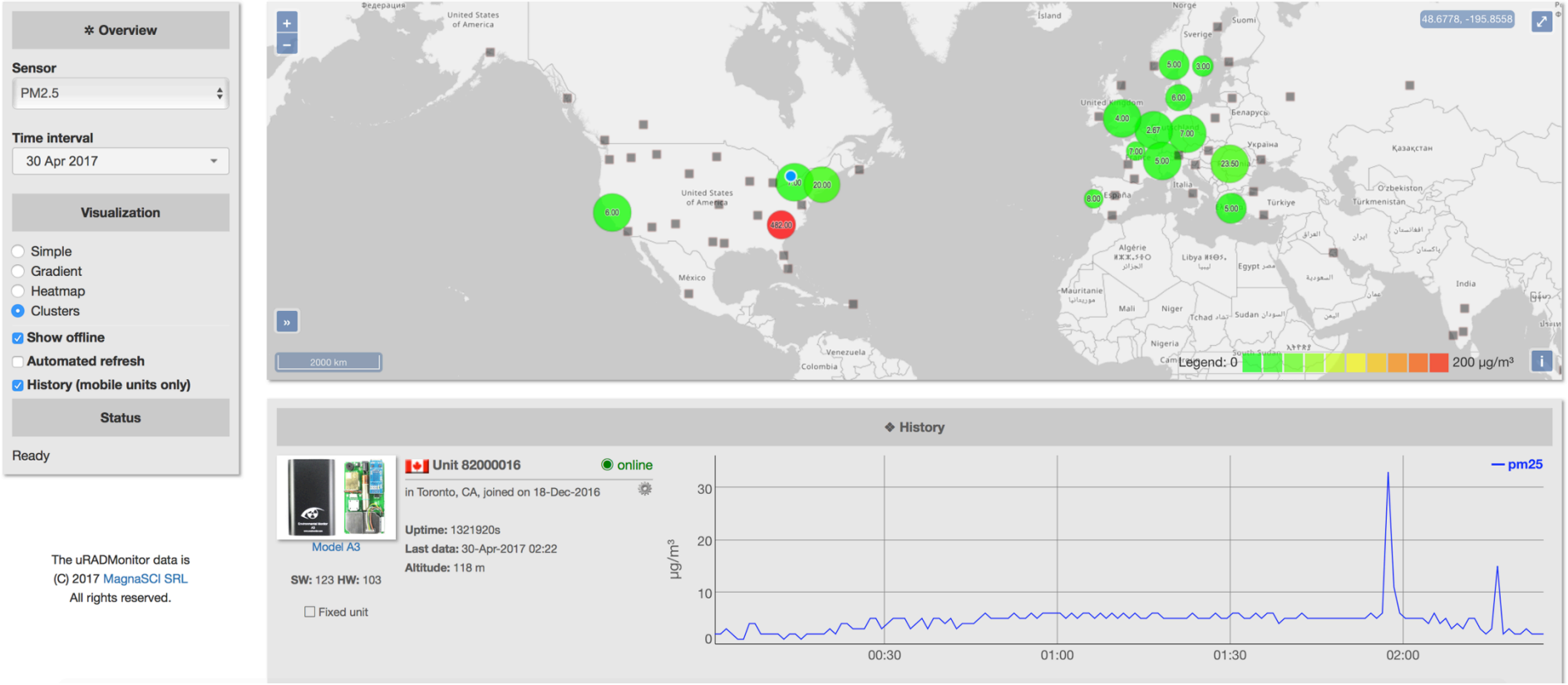
- Integrated PM2.5 and CO2 sensors detect fires accurately. The LoraWAN (+15km radio range) based connectivity and low power consumption permits remote deployments.
- Integrated Ionising Radiation sensors to map background radiation levels both from Terrestrial and Cosmic sources
- Interconnected IOT topology at its core for Smart Cities, Smart homes, a complete Live Smart solution.

Worldwide Background Radiation map

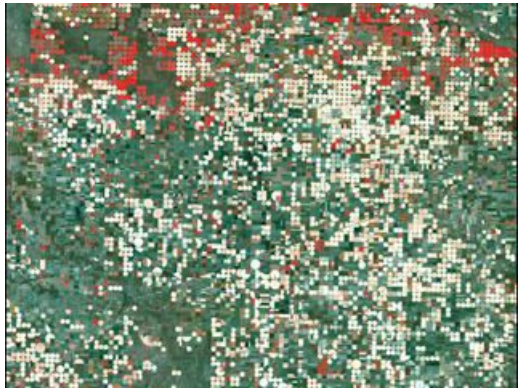


http://www.uradmonitor.com

Worldwide PM2.5 map

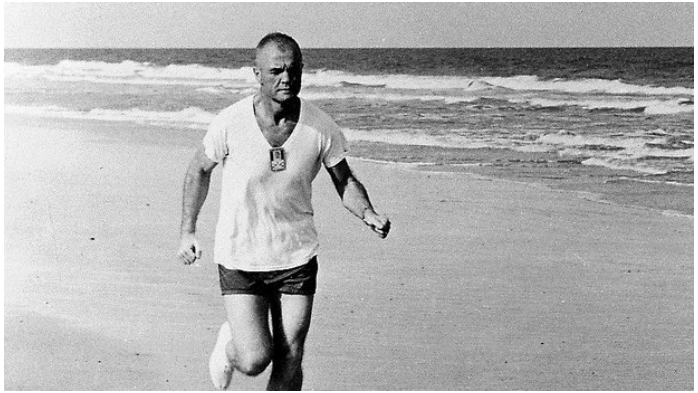


http://www.uradmonitor.com



The Earth and Us

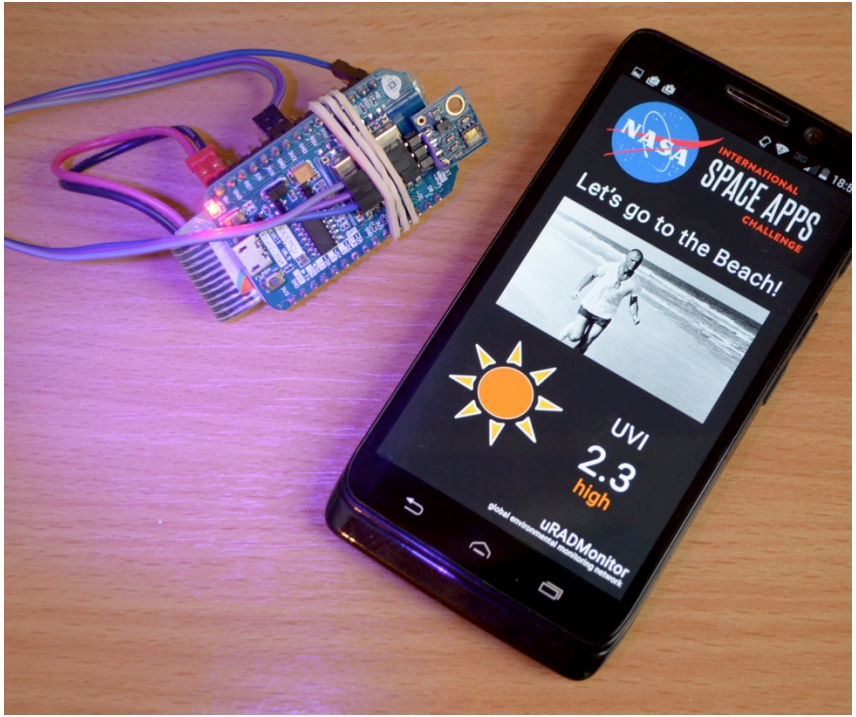
Challenges in this category will ask you to combine NASA Earth Science data with sociological and economic information to generate new understanding and perspectives on human-environment interactions.



Let’s go on the Beach

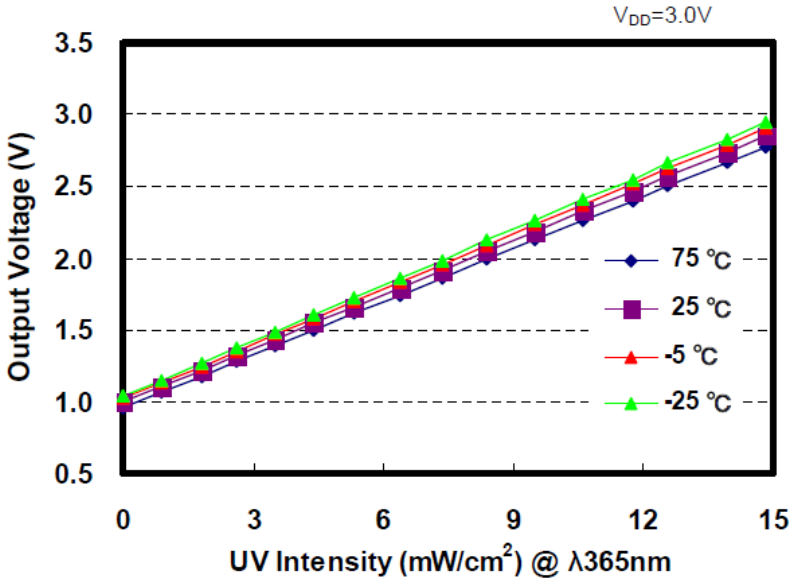
Build a tool for beach-goers to monitor for hazards and to alert them of precautionary measures for protection on their swim- and surf-filled adventures!

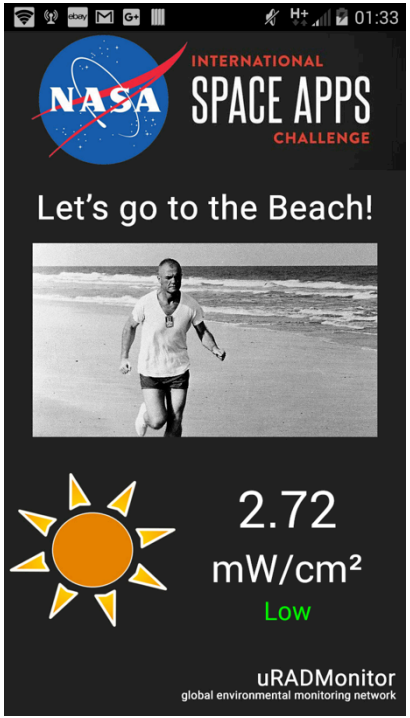
Hackathon Project



1. Hardware IOT Device based on ESP8266 and ML8511 UV Sensor
2. ESP8266 firmware
3. Android App
4. Backend implementation (uradmonitor.com)

UV Readings


V_{DD}=3.0V
Output Voltage (V)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0
3
6
9
12
15
UV Intensity (mW/cm^2) @ λ365nm
75 ℃
25 ℃
-5 ℃
-25 ℃


01:33
INTERNATIONAL
NASA
SPACE APPS
CHALLENGE
Let's go to the Beach!
2.72
mW/cm²
Low
uRADMonitor
global environmental monitoring network

Health impact

When the day's predicted UV Index is within various numerical ranges, the recommendations for protection are as follows:[17][22]

UV Index	Media graphic color	Risk of harm from unprotected sun exposure, for the average adult	Recommended protection
0.0–2.9	Green	"Low"	A UV Index reading of 0 to 2 means low danger from the sun's UV rays for the average person. Wear sunglasses on bright days. If you burn easily, cover up and use broad spectrum SPF 30+ sunscreen. Bright surfaces, such as sand, water and snow, will increase UV exposure.
3.0–5.9	Yellow	"Moderate"	A UV Index reading of 3 to 5 means moderate risk of harm from unprotected sun exposure. Stay in shade near midday when the sun is strongest. If outdoors, wear sun protective clothing, a wide-brimmed hat, and UV-blocking sunglasses. Generously apply broad spectrum SPF 30+ sunscreen every 2 hours, even on cloudy days, and after swimming or sweating. Bright surfaces, such as sand, water and snow, will increase UV exposure.
6.0–7.9	Orange	"High"	A UV Index reading of 6 to 7 means high risk of harm from unprotected sun exposure. Protection against skin and eye damage is needed. Reduce time in the sun between 10 a.m. and 4 p.m. If outdoors, seek shade and wear sun protective clothing, a wide-brimmed hat, and UV-blocking sunglasses. Generously apply broad spectrum SPF 30+ sunscreen every 2 hours, even on cloudy days, and after swimming or sweating. Bright surfaces, such sand, water and snow, will increase UV exposure.
8.0–10.9	Red	"Very high"	A UV Index reading of 8 to 10 means very high risk of harm from unprotected sun exposure. Take extra precautions because unprotected skin and eyes will be damaged and can burn quickly. Minimize sun exposure between 10 a.m. and 4 p.m. If outdoors, seek shade and wear sun protective clothing, a wide-brimmed hat, and UV-blocking sunglasses. Generously apply broad spectrum SPF 30+ sunscreen every 2 hours, even on cloudy days, and after swimming or sweating. Bright surfaces, such as sand, water and snow, will increase UV exposure.
11.0+	Violet	"Extreme"	A UV Index reading of 11 or more means extreme risk of harm from unprotected sun exposure. Take all precautions because unprotected skin and eyes can burn in minutes. Try to avoid sun exposure between 10 a.m. and 4 p.m. If outdoors, seek shade and wear sun protective clothing, a wide-brimmed hat, and UV-blocking sunglasses. Generously apply broad spectrum SPF 30+ sunscreen every 2 hours, even on cloudy days, and after swimming or sweating. Bright surfaces, such as sand, water and snow, will increase UV exposure.

Thanks for watching!

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