### Tags: Hardware

*For the level 2 hardware challenge, we used a Raspberry Pi & Arduino to greatly improve the future processing power of the ArduSat Satellite. The two communicate by UART/serial, taking care to add a two-thirds voltage divider in between. For the science challenge we mounted a webcam to two servos, driven by the Uno. Using an algorithm, the camera will track an object to keep it in frame & then update the position of the servos to track objects in real-time, to be implemented on the satellite.*

This project is solving the [**ArduSat**](https://2013.spaceappschallenge.org/challenge/ardusat) challenge.

**Description**

Our project is to extend the functionality of the ArduSat to use a camera and send images of the Earth to people's mobiles. We are using open cv to track the earth with the camera and adjust the camera angle to center the earth in the picture frame. This can be manually overridden by the user via a mobile, tablet or PC using our webserver - http://www.agm.me.uk/arduhack/ (the user control is yet to come).

Also, a future idea is to beef up the processing power of the ArduSat by using a BeagleBone/Raspberry Pi as the main computer but keeping it compatible with the Arduino platform. We're taking on the level 2 Hardware challenge by running a RasPi as the main computer alongside an Arduino UNO to experiment with.

**Project Information**

* License: [MIT License](http://opensource.org/licenses/MIT)
* Source Code/Project URL: <https://github.com/Pat-Ewen/arduhack>

**Resources**

* Raspberry Pi I2C Code - <https://github.com/tristanheaven/arduhack>
* Data Communication And Analysis Code - <https://github.com/maxsimmonds/ArduHack>
* ArduHack Instructable - <https://docs.google.com/document/d/1h-0gTvuxP0_cKN5xx_3pEQ1iWZDnd0DodFXMKMiEbd0/edit?usp=sharing>
* Website for ArduHack - <http://www.agm.me.uk/arduhack/>