**Lightning detection and photography**

Our goal in this project is to detect and take pictures of lightnings in Earth’s stratosphere. We want to achieve this by examining peaks or significant changes in Earth’s electromagnetic field while taking and classifying pictures.

This project would take advantage of the Astro Pi’s onboard IMU sensor, camera and the Coral TPU.

Because we are looking for electric fields, we should be able to detect them even thru ISS’s and Astro Pi’s shielding, which can act as a Faraday cage. We will also take pictures periodically and try to classify them using a tflite model trained on modified NASA footage. Images classified as “empty” will be deleted and images that come out as “lightning” will be saved. We will store some of these pictures regardless the classification, so if the model wasn’t precise enough, we would still receive some images to work with.

After the experiment, we plan to compare data from the magnetometer and classified images to NASA database from the same time. We hope to find a correlation between storms and their effect on Earth’s electromagnetic field.