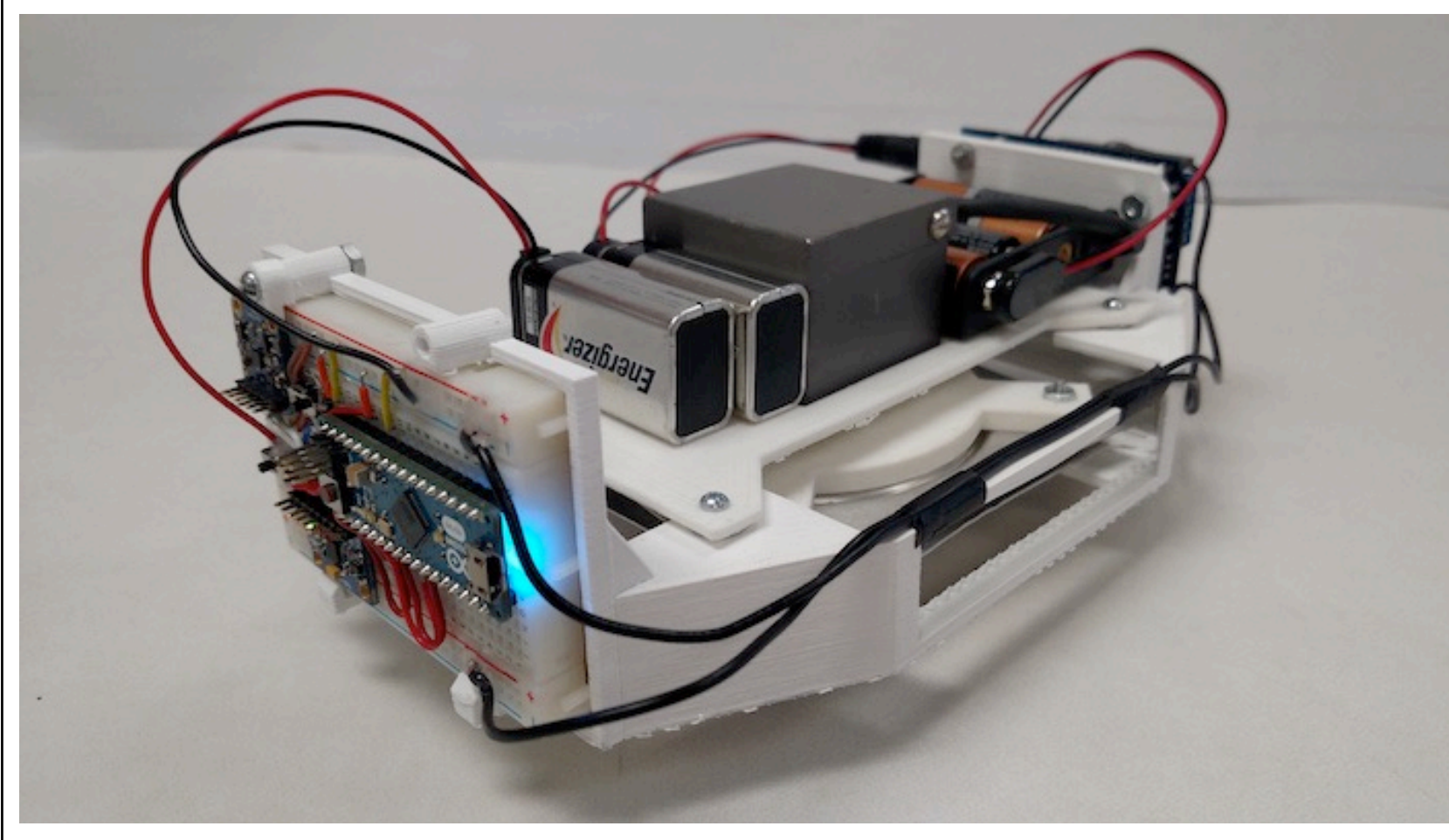


HAB Camera Stabilizer



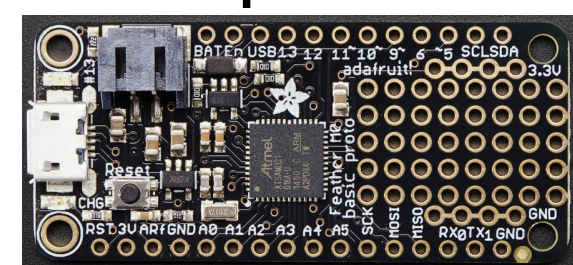
INTRODUCTION

The HAB camera stabilizer idea came from a group of physics students at Wright College in Chicago. Our design was heavily based on their previous work.

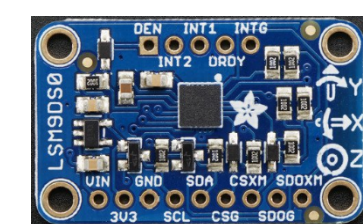


METHOD

We used an Atmel ARM Cortex M0 microcontroller to control all aspects of our system.



Our magnetometer was the LSM9DS0 commonly used in quadcopters for directional stability.



These constituted our command and control structure, with the vast majority of our efforts directed at calibration and real-time heading calculations.

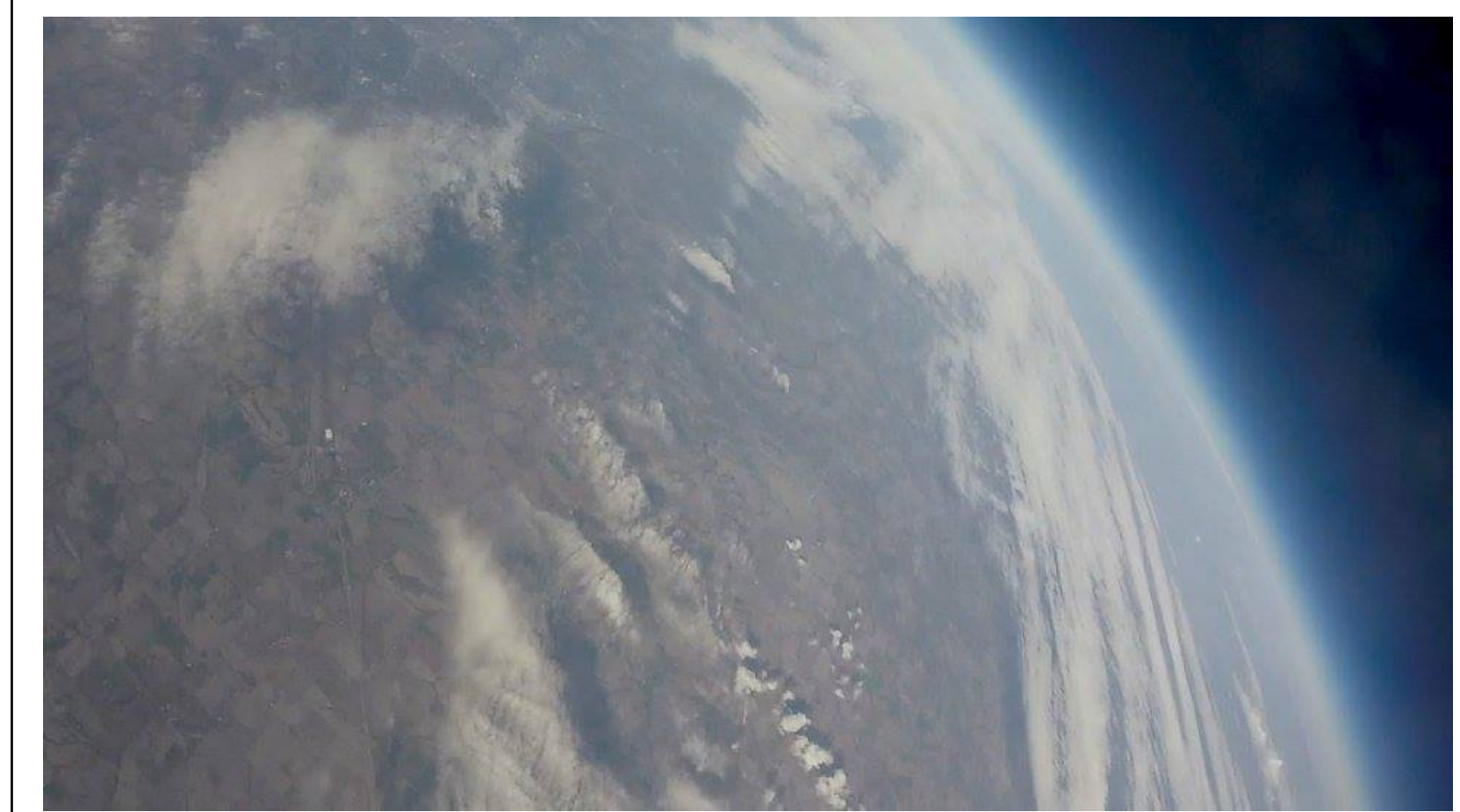
RESULT

Our efforts were ultimately unsuccessful as the magnetometer was insufficiently shielded, leading to excessive drift that was too random to be programmatically offset.

The shape of the platform, in conjunction with unusually high turbulence during the flight contributed to the platform's complete destruction during the last 15 minutes of ascent.



Fortunately, the camera continued filming, providing us with spectacular pictures of the earth.



CONCLUSIONS

Despite the failure of our platform during this flight, we learned a substantial amount about shielding to remove unwanted magnetic fields, and about insulation to stay within specified temperature ranges. Just as importantly, we also learned a lot about ruggedness. We put most of our efforts into functionality and secondarily into neatness, neglecting to take into account just how unpredictable and violent our atmosphere can be.

The next iteration of our platform is currently being designed, with special attention being given to the lessons we learned during this flight.

CONTACT

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