

## INTRODUCTION

ACC's chemistry department approached the DemoSat team to test the brightness of OLEDs at high-altitudes. The purpose is to see if OLEDs are stable and remain bright at low pressure, low temperatures, and in low oxygen. The OLEDs will be manufactured in-house and are expected to be ready for the summer launch. Our team put together the remaining sensors to gather and test data from an actual balloon flight.

## WHAT IS AN OLED?

When an electrical current is run through organic layers between two conductors, light is emitted.<sup>1</sup> Different chemical mixtures result in different colors!

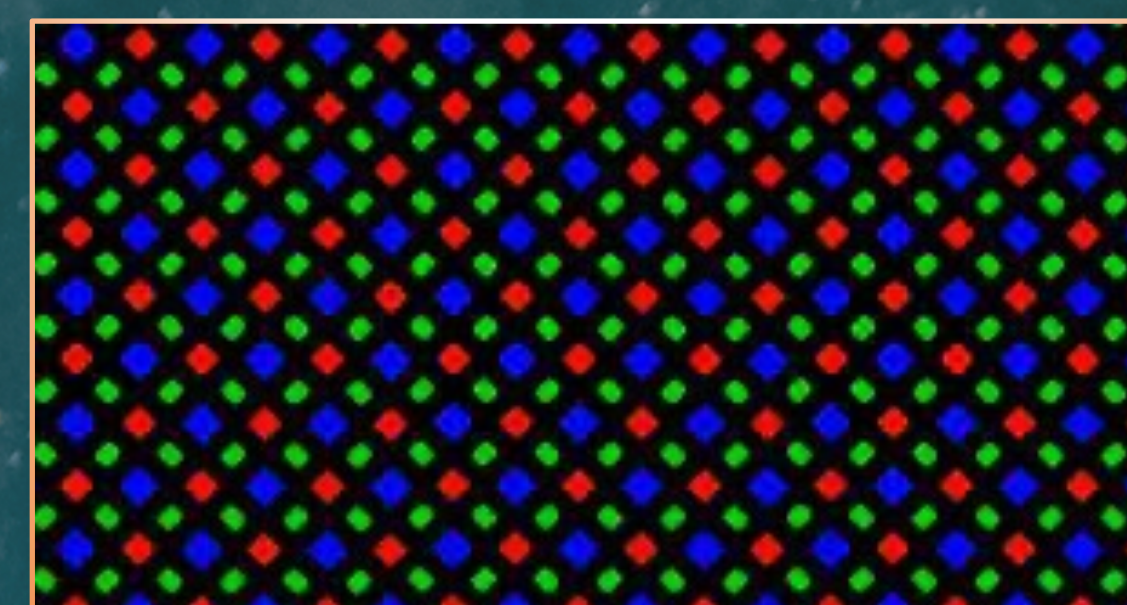


Each OLED produces its own light and can be its own pixel. Applications include flexible screens and signal lights for NASA rovers and satellites. They're less expensive and more customizable than conventional LEDs!

## HOW IT WILL WORK

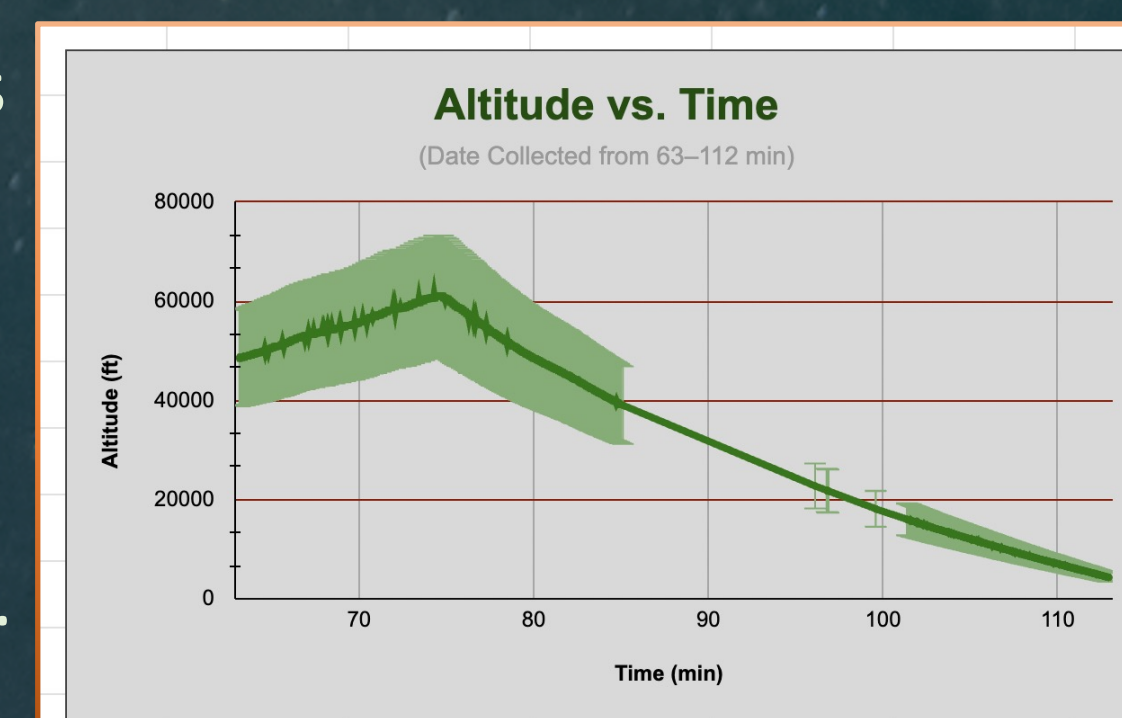
Two OLEDs will emit a green light onto separate sensors in light-tight chambers. The experimental OLED does not require oxygen to function, while the control OLED does. We will compare the brightness of both OLEDs against the environmental data.

An arrangement of OLEDs on a smartphone screen that, viewed from a distance, would produce white light. Green is the brightest and most efficient, therefore its pixels are the smallest.<sup>2</sup>



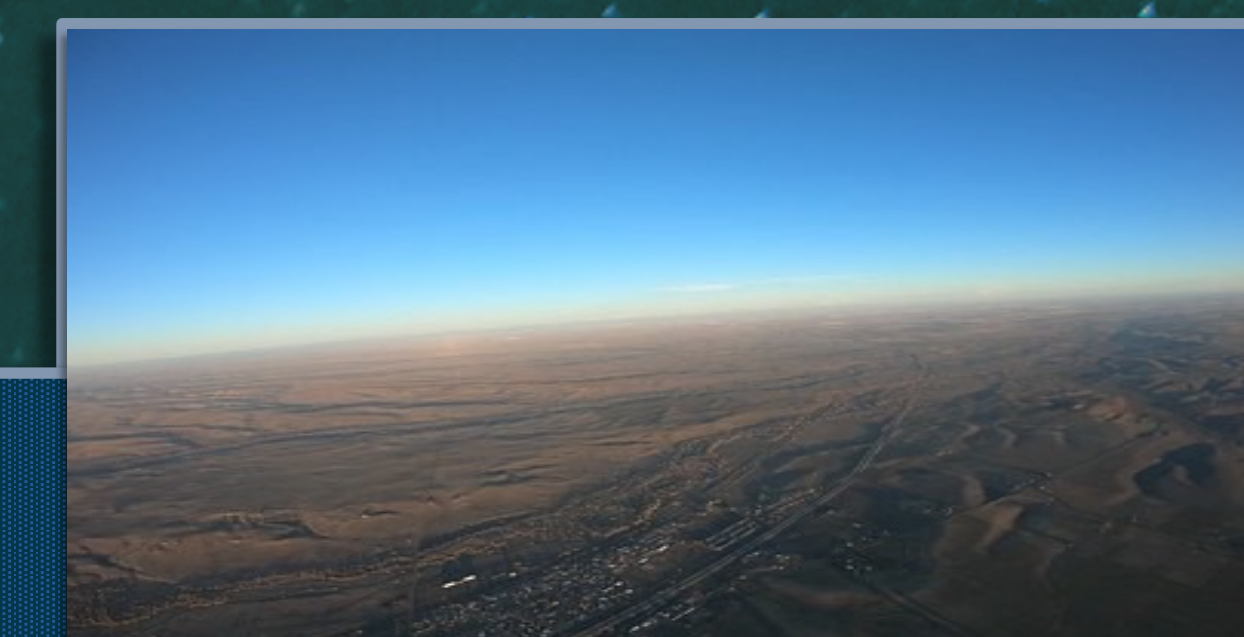
## RESULTS

Our data began recording about 63 minutes into the flight. There was also a large data gap between 85 and 101 minutes, with some intermittent data. The cause of this is unknown. (Our data is highlighted; the non-highlighted line is interpolated.)



## CONCLUSION

This launch gave us the opportunity to build our first payload, learn preliminary coding, and to test the sensors needed for the summer launch.



## RECOMMENDATIONS

We were missing info from all sensors for the first 63 minutes, so we need to work on increasing heating capacity to prevent future data corruption. We would also like to strengthen project management and optimize workflow.

## ACKNOWLEDGEMENTS

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