Connecting Maryland's All-sky Camera Network

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Science, Discovery, and the Universe
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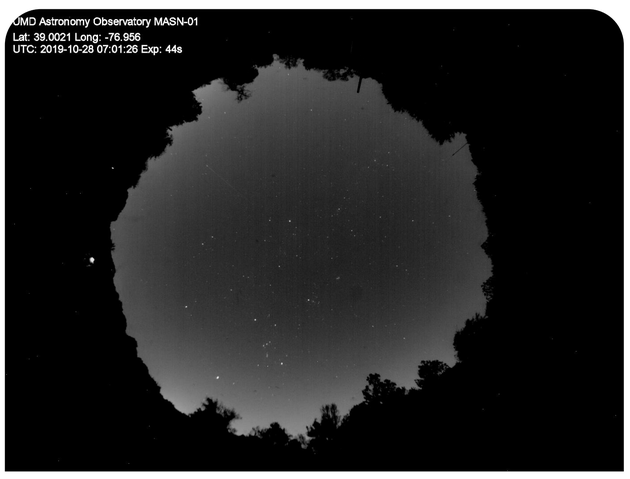
Introduction

All-Sky cameras like the one shown above can take images of the entire night sky at once in surprisingly high definition. Over the past few years, the University of Maryland's Astronomy Department has been setting up these cameras with the help of SDU Capstone students like me.



Mission

At this point in the Maryland All-Sky Network (MASN) project, the team was looking for a way to host their images online for the public to see what the cameras took. It became my task to produce a website with automated processes to load these images to the website as they were taken.

Design

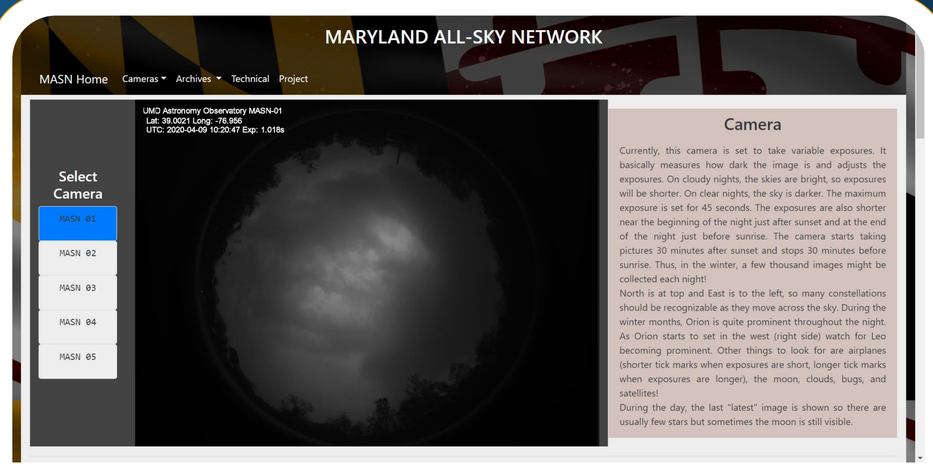
The design process starts with determining what should go on what pages. In our case it was simple; we wanted

- A 'home' page
- Archival pages for storing images
- Pages dedicated to the individual cameras
- A page dedicated to the methods involved
- A page dedicated to the participants

Accessibility is another issue to keep in mind when designing a website, as the goal is to be as user-friendly as possible to as many people as possible. This means being aware of

- Color pallets for colorblindness
- How screen-readers interpret the page
- How content displays differently on other devices
- Idiomatic language for those with language barriers

Once these were decided, I sketched the layouts of each page to determine where the content would go.



Production

Using the sketch as a guideline, each individual page comes together slowly. The website was developed with the Bootstrap 4 framework in order to make it responsive and clean. However, it also tends to be a lot more work than coding directly into HTML and CSS. The image above contains a screenshot of the finalized home page.

Impact

For me, personally:

- Learned more about websites
  - Web development is a sorely neglected topic in computer science.
- Proud of what I did

For the University:

- Raise the bar for all-sky camera networks in other universities
  - Most all-sky camera websites are simple, not user-friendly
- Another resource to promote science education to the public
- Helps to store scientific data and publish the research done by the Astronomy department

Outlook

This website will hopefully become a great way for the Astronomy department to promote science education. The Observatory holds Open House nights each month to do stargazing and other activities for families, so the website can be a way for people to stay involved for the other days of the month. The website is not yet complete, as the database team in the astronomy department is still working on how to store the images for some of the archives. This means that the current scripts for those pages are temporary and will not reflect the final website. This is, however, relatively easy to implement once the architecture is in place.

Acknowledgments
Mrs. Elizabeth Warner, for her close guidance on this project
Dr. Peter Teuben, for his technical explanations
The Astronomy Department, for giving me this opportunity