Abstract

*Dark Sky* is a web system project, and was completed for and alongside Hoosier National Forest as a part of the Sustainable Hoosier Communities Initiative. We call this project *Dark Sky* because its goal is to track and display light pollution data. Light pollution is the brightening of the night sky caused by man-made sources (like city lights). Hoosier National Forest wanted to complete this project because they hope to be designated an International Dark Sky Park[[1]](#footnote-1). This requires them to prove that, over time, total light pollution levels are below a certain threshold. Our system helps them do that in a few ways.

We worked alongside a hardware team (another IU class) that developed light sensors. These light sensors take readings once per hour, every day. At the end of the day, the readings are published to a server. Our system is subscribed to these publishings, so each day, new data is added to our database. The data in the database is available to download in CSV format. This gives Hoosier National Forest the ability to supply data for whatever time periods they choose. This data is also displayed on a map and in various graphs on our website.

The previously described sections of the website can also be used by the public, specifically by users who might be interested in light pollution or astrology. Our web system contains an administrative side that is only available to personnel designated by Hoosier National Forest. The administrative website allows admin users to add and remove sensors, which are ultimately added to the map. If a sensor is removed from the system, its point on the map disappears as do its graphs. The admin site also has a special component for what we call root users. These are managerial type accounts, which can add and remove the admin access of other users.

*Dark Sky* is a web system that can easily be adjusted for use by other parks and institutions to track their own light pollution data. The system could also be tweaked to report other types of data, like how many people walk a trail throughout the day, simply by changing the type of sensor used in the field. *Dark Sky* will allow Hoosier National Forest to provide light pollution data to the International Dark Sky Association in many different formats and ultimately be designated one of the few International Dark Sky Parks in the Midwest.

1. http://www.darksky.org/idsp/parks/ [↑](#footnote-ref-1)