Problem:
Thousands of cameras exist that are connected to the internet but almost none of them are aggregated into a database and even fewer include the metadata and no API exists in order to take advantage of any of this vast amount of information. This problem with the vast amount of connectedness we have in our society today is the limited usability of data. Having the data is good but you need context to apply it. Data is not useful if we are only able to access the video stream and not the information about the camera. Nor is an application useful unless it is able to analyze the data and get useful information from it without having to do too much work.

Solution:
Create a Cam2 database of cameras and camera information. We do this by finding and gathering cameras, looking for websites that have a large data base of cameras with available location information. To find information on the cameras we write python scripts to parse websites and extract the longitude and latitude of the cameras location. From this information we can complete our database with its city, state, country and zip codes. We also need a simplified user interface / website for CAM2. This is how users access the features of CAM2. By making an account they can start creating groups of cameras.

Goal:
Our goal is to make it easy to leverage the vast amount of network cameras set up for various reasons around the country. We plan to accomplish this by creating a new website, where CAM2 processes do not run on the server, instead the configurations are downloaded to the user’s computer. Also the site will be able to run independently of other CAM2 components, allowing it to be hosted anywhere. As well as create and establish documentation about the newly created CAM2 dataset, and determine how various machines learning models (namely Faster RCNN) performs on our dataset.

Progress:
So far we have established basic site design, identified core functionality. Currently our database contains information on over 119000 cameras located in 162 countries around the world. CAM2 allows the users to aggregate camera data from thousands of network camera sources all across the globe in real time. In addition to making massive data aggregation simple, CAM2 is able to analyze the data in real time. Our database has over 120,000 active cameras with accurate camera location data and resolution information. We have developed methods to assess the frame rate and uniqueness of the cameras. Our camera database is currently accessible through the CAM2 website and images can be apprehended and analyzed using the CAM2 Python API. We are also working on neural network and machine learning, trained with FASTER-RCNN on ImageNet data. We are labeling images for our data set as well as successfully detecting humans.