Major Steps

1. Gather data
   1. Google Earth Engine. Gather 500 ignition events/yr and 1000 non-ignition events/yr over 10 years.
      1. An ignition event is when a fire starts in a sq km without surrounding fires.
      2. Apportion out the number of ignition events used regionally
      3. Coordinate box: (42.073489, -124.409964) to (32.651967, -116.116676)
      4. This should get us to 5000 ignition events & 10000 non-ignition.
         1. (long, lat, visibility, binary label, date / time)
   2. OpenWeather API. For each event, pull:
      1. (7 day: min, max, pressure, humidity, wind, elevation, clouds,

# 

Questions

# Major business questions

1. Is ignition and fire spread prediction really a holdback in the fire-fighting process?
2. What do sensors inside of the forest canopy offer that weather stations cannot for the task of prediction?
3. What is the

# Major tech questions

1. Will the sensors be able to operate for 6 months without maintenance
2. Will the

# Build goals

## IoT Route: Sensors

Sensors

# Resourcing

Earth engine

Free for non-commercial use

Python and Javascript APIs

Online interface of catalog data

## Weather APIs

### Fire Data

* Google Earth Engine:
  + Available 05/2017 - present: <https://developers.google.com/earth-engine/datasets/catalog/NOAA_GOES_16_FDCC>
  + Available 05/2017 - present: <https://developers.google.com/earth-engine/datasets/catalog/NOAA_GOES_16_FDCF>
  + Available 08/2018 - present: <https://developers.google.com/earth-engine/datasets/catalog/NOAA_GOES_17_FDCC>
  + Available 08/2018 - present: <https://developers.google.com/earth-engine/datasets/catalog/NOAA_GOES_17_FDCF>

### Open Weather Map API

Items to ask for

* Data types: forecast, historical, statistical
* UV index, air pollution, O3, SO2, CO levels

### Dark Sky API

## Satellite APIs

Planet.Com API

## Vegetation

US Forest Service - <https://www.fs.fed.us/emc/rig/protocols/vegclassmapinv.shtml>

Earth Engine - Vegetation Indicies (<https://developers.google.com/earth-engine/datasets/catalog/LANDSAT_LC08_C01_T1_8DAY_EVI>)

## Other Data

<https://www.cpuc.ca.gov/FireThreatMaps/>

<https://www.nrcs.usda.gov/wps/portal/nrcs/surveylist/soils/survey/state/?stateId=CA>

<https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

<https://www.usgs.gov/land-resources/lcsp/fire-danger-forecast/data-tools>

<https://www.researchgate.net/post/Is_there_a_standard_dataset_for_fire_detection_using_deep_learning_CNN>

[Fire Data](https://projects.sfchronicle.com/trackers/california-fire-map/2019-lonoak-fire#aboutdata)

[Cal Fire Stats](https://www.fire.ca.gov/stats-events/)

## Visualization APIs

Map Box API

# Prizes

1. Moonshot Prize: The craziest, most out-of-this-world project. 11" iPad Pro with Apple Pencil for each team member, Lego Nasa Apollo Saturn V Rocket for each team member, and $100 Airbnb Gift Card for each team member
2. Most Technically Complex: The project built using the most technical skills. Bose QuietComfort 35 Bluetooth Headphones for each team member
3. Most Impactful Hack: The largest social impact project. Apple Watch Series 5 for each team member
4. Geospatial Grand Prize: Best project within the Geospatial Challenge. $400 Southwest Airlines Gift Card (https://www.southwest.com/html/generated/help/faqs/southwestgiftcard\_faq.html) distributed across team members
5. IoT Grand Prize: Best project within the IoT Challenge. Philips Hue Wireless Starter Kit + Amazon Alexa Dot for each team member
6. Best Hardware Hack: Best project leveraging hardware. Samsung 32" Curved LED Monitor for each team member
7. [Microsoft] Azure Champ Prize - Hack for Good: For an innovative project built on the Azure platform that helps resolve a real need in society. Surface Go's + Keyboards for each team member, and a $1000 donation to an approved charity of team's choice.
8. [Oracle] Make the World a Better Place Hack: AirPod Pros + $5,000 in Oracle Cloud Credits for 1 year
9. [Neo] Perseverance Prize: If you’re thinking of continuing your project after TreeHacks, submit now for a chance to win in May! The team with the most progress by May 15th will win custom jacket with your project’s/startup’s logo and strategy session with Ali Partovi, an early investor in Facebook, Dropbox, Uber, and Airbnb. Runner Up: A water bottle with your project’s/startup’s logo and strategy session with Ali Partovi, an early investor in Facebook, Dropbox, Uber, and Airbnb.
10. Best Data Visualization: We will be judging for the best data visualization hack. Projects will be judged on your ability to make data more accessible to more users. Can you make large data sets easily understandable at a quick glance? In a world overflowing with data, breaking it down for people is more important than ever. Bonus points will be given to those who use financial data. Award: Oculus Go Headsets
11. [Google Cloud] Best Use of Google Cloud: Use of any Google Cloud product in your project. 1st Place Team: Google Home Mini, Cloud Patagonia Backpack, Cloud Pillow, Acrylic Trophy, and Cloud Water Bottle. 2nd Place / 3rd Place Teams: Google Nest Minis