# Electri : Automated Data Sourcing for AMBER Alert Response

HCI HW #1, Document 1
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## Project Idea

Electri is a service for automating, maximizing, and streamlining data sourcing for vehicle-centered AMBER alerts. Users with car dash cameras or autonomous vehicles with similar capabilities can install and elect to opt-in to Electri's system. When an AMBER alert is issued within a geographic region, any of the cars that have opted into our system will also be notified and while the alert is active and the car is in motion, will send one image every second along with its geographic coordinates and timestamp to our image processing server to be analyzed. ElectriHub, the end user program, will then consolidate data on a per-alert basis to determine matches for vehicles of interest. ElectriHub will map matches and forward appropriate data to the corresponding law enforcement authorities. In the event law enforcement needs additional, controlled coverage, ElectriCars, which are small autonomous vehicles, can be deployed to patrol certain areas, and will report back to the hub in a similar way to the ElectriCams. Thus, with minimal user interaction, any everyday person can contribute to the search for missing children and help save lives.

## Overview

Electri's interface is *ElectriHub*. This webpage will allow authorized users to log in, view database analytics (i.e. number of connected dashcams and cars, average response time to alerts, etc.), view data collected per AMBER alert, issue manual search queries, and forward consolidated data to the appropriate law enforcement authorities corresponding to geographic regions. This interface is a critical part of the overall end-to-end system. A user should be able to easily view collected data and metrics for alerts to forward information to law enforcement agencies with a high degree of confidence. Thus, our system must achieve the usability goals of utility, efficiency, memorable, and learnable.

# Efficiency: *Ethan*

In an emergency situation involving missing persons, the last thing a government official should spend time doing is trying to understand and work through a complicated and convoluted interface. We strive to design our systems with efficiency in mind such that all stakeholders can access the information they need in an efficient manner. One idea for this is through limiting the number of pages and interfaces the user has to move through to access the information they need. Our goal is to enable users to access any information by navigating through fewer than three pages, assuming they are signed in to ElectriHub. Another idea we will be incorporating into our designs is an advanced filtering system. This will allow users to specify exactly what information they are looking for so they can retrieve it efficiently. These features, combined with others and our overarching goals of maximizing efficiency while minimizing complexity, will directly enable users to get the information they need from the Electri service as efficiently as possible.

# Utility: *Cat*

The Electri service has an important and specific objective. Thus, we want ElectriHub to only encompass features that serve its overall utility. Excess features would only serve to distract from the time-sensitive mission. ElectriHub's interface will be minimalistic and easy to navigate with limited pages in the navigation bar and "filter by" options for sorting through data where appropriate. A "Map View" feature will be provided so that users can easily view in real time "pins" of matches for each AMBER alert on a local map, and view any relevant info such as the image taken, and when it was taken. A database of past alerts will allow users to see past data, even for inactive cases, in the event that law enforcement would request more information, or a user would want to more closely analyze how the Electri system is making its recommendations.

# Learnability: *Nate*

To make everything as learnable as possible, we want to centralize most of the workflows around the Map View, which will act as the main place a user will configure the system and view any relevant data. In general, the user will click on something on the map, and then either view its data, or configure it. For example, they may click on a red pin representing a matched car, which allows them to see the picture and the time it was taken. For the ElectriCars, when they click on them, they will be able to see the video feed and general info, along with buttons to set

the path for the car and tell it to come back to the hub. By using similar interfaces and routines for each of these, it should make the interface natural and easy to learn. We will also try to minimize the features/options a user has beyond what is needed, as there may already be a lot of information on the screen, and adding many options will make it hard to manage. The only area that may present a problem is ElectriCar routing, and as such, this may require some guidance on how to add/remove patrol points. With clear labels this should still be relatively natural, but if needed, we can add a tutorial with an example of how to plan a route. In general, most of the UI should be relatively simple to learn and figure out, and we will try to use standard conventions for layout on each page, and try to keep the main workflows as simple as possible, which make it as learnable as possible.

## Memorability: *Kelvin*

ElectriHub functions as an interface that displays the information gathered from ElectriCams and ElectriCars.  It will do so using a map that closely resembles Google Maps which itself is widely used and recognized.  The similarities will make ElectriHub easily memorable since most people already have experience using digital maps.  Our UI also has many features that will be labeled along with well-known icons such as a prompting textbox for search functions and common colors such as red, yellow, and green representing inactive, active but not seeking, and actively seeking statuses respectively.  Using icons and qualities that are intuitive and already known will help to increase the memorability of our product.