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Final Project: Problem Identification

Bicycle Routes and Logistics:

A system that will gather from a variety of data sources to provide a near-real time resources for various cycling activity related data: Commonly navigated roads, gravel roads, offroad trails, weather, public and private property, open and closed due to construction or weather, etc. Time I really think would be the biggest item to gain on top of ultimately safety should be always if possible, a collateral bonus of any scenario especially when it comes to some sort of physical extracurricular activity. I spend normally between 5-15 hours per week riding or training for cycling. I am fortunate enough to live in a more rural area of a larger city and I am very familiar with all of the local roads and traffic patterns, but depending on the discipline that I would like to do or maybe I am looking for a different type of adventure I would like to create a route that is different in a location I have not yet become familiar with. While there are certain functionality and logic that is applied to most applications like Strava, it does not take in live data from weather or traffic sites that might change recommendations of routes from commonly used routes/roads/trails.

As an avid cyclist and amateur racer, I have multiple types of bicycles that are used across multiple types of terrain. Route planning and logistics of local routes or even areas that are not local if you were planning on traveling or vacationing and wanting to bring your bicycle is always an issue. There are multiple redundant tools and applications that provide a service like what is described but none of them are federated together into one single qualified system and coupled with the additional and more live weather and road closer type of data that would make the quality of this increase exponentially. Regardless of if it is acknowledged or not, there is a level of animosity between drivers and cyclists on both sides. Like all situations there are two sides to each and every story with each side having their own view point of what is reasonable or unreasonable. The ability to look at both data from cyclists tracking their rides using GPS integrated into traffic data to ensure the recommendations of routes take into consideration time of day and traffic patterns to include any construction to attempt to mitigate any possibilities of accidents. The priority of any building, process, or application even if it is just from an ethical perspective is to ensure the safety of people at all times.

The starting place and probably the biggest hurdle would be able to take in all of the data from at least the major market Computer GPS devices and at least generate a data warehouse of sorts to be able to work from. I know from experience most of these devices from major brands such as Garmin, Wahoo, Hammerhead, Sigma, Bryton and others all have their own middleware sort of application where your rides are uploaded into from the device and then from there you will make your decision where you want to share that data. For instance, probably the most popular platform to share or social media based Cycling or Endurance Athlete sort of website/application/platform would be Strava. Strava takes the GPS data and then integrates that in with more metadata, so you are able to see other more social metrics of your ride such as who you road with during the ride and then be able to follow that persons profile and see all of their rides both historically and future and "Like" and "Comment" and have a familiar timeline to most social media websites have now. There are other little add-ons that are not really pertinent to any Route or Logistics information and mostly just again adding metadata after a ride has taken place. There are route planning functions that provide this service type of service, paying members can use a map plot out a route and the "Route Builder" is able to use a "Heatmap" of commonly or heavily used routes of other local riders that have uploaded their data. I am a paying member of Strava and do this feature regularly, I can tell from certain menu options that you can select certain options as far as what type of bicycle you are riding as in a MTB, gravel, or road bike, and if you are running or hiking on trails. Other options like if you want to follow the most popular or the most direct.

I cannot say definitively that this system would be the end all be all of resolution to the issues that all recreational or even professional cyclists face day to day. I will say that these are some of the issues that I have faced in my 5-8 years of what I would consider to be a person that probably spends a far above average amount of time riding a bicycle in my local area (around 10+ hours a week and normally in neighborhood of 10,000 miles a year). It would be great to have some sort of platform that is able to combine attributes of technology that is all existing just in segregated formats or applications. The majority of the integration that would be required to make this project come to fruition would more than likely be beyond my realm of expertise, but at times recognizing a need is half the battle in and of itself. I think it is important to hold onto that the biggest net gain I feel from an application like this would rally just be a large leap forward in safety. In all things people safety should be paramount if it is possible to make peoples activities less dangerous especially something that is a healthy outdoor activity, and if done correctly can reduce in the stereotypical impact that cyclists have on the road where they are taking up entire lanes of traffic and they are not able to travel at normal traffic speeds.

There is a definite gap in who this application would work for, it would be for cyclists who have really committed to purchasing GPS devices and actually tracking and uploading their routes and paying attention to where they are riding so it would not solve the issue full stop but might be a start for the mass majority of probably committed cyclists who are the vast majority of those on the road.