2021 GYEC Projects Pool

Note: If you want to choose a project from the Projects Pool, please contact the Competition Committee to book your project so that other teams will not choose the same project.

[Project 1]- YouTube Education Panel

Now in the world, there are lots of places with very limited education resources. Although internet coverage is large, lack of local teachers still results in lack of access to education in lots of places. This situation needs to be urgently mitigated because education can change millions of peoples' lives, and lack of education is the same as losing opportunities to change people's lives. Youtube, the largest video sharing platform in the world, can definitely give a hand to improve the situation. Building an education panel on Youtube can promote awareness of the importance of education and also provide education resources everywhere.

The new featured education panel is a homepage based on US-largest video-sharing platform, Google YouTube, aimed to provide a unique education platform which is able to satisfy the specific personalized educational needs of the users from diverse backgrounds, through its miscellaneous subsections, such as live-class interactions, system-recommended or trending video resources, customized management of favorites and connection with top-rated lecturers. It enables the users to immerse themselves in the vast knowledge ocean with the greatest level of diversity, flexibility, preciseness and comprehensiveness, which can not be generally achievable in either traditional on-campus classes or massive open online course platforms (MOOCs). In short, the education panel along with its well-designed features will be an effective life-partner and assistant for one's lifelong learning.

To build this platform, please consider thinking from top to bottom what resources you need. For example, from top level, you will need a technology team to implement the product, a marketing team to promote the feature, an operation team to monitor the progress and do the financial auditing, and a management team to manage employees. For each team, you can think deeper and in more details what exact resources are needed.

[Project 2] – Travel Planner

There are lots of travel planning websites. However, most of them are simply posting blogs uploaded by travelers. There are no personalized travel planning services. In addition, these existing websites cannot make any recommendations if no travelers have been there or shared any experience online. To improve user experience, let's create a personalized auto-generated travel planning application. With this application, lots of human resources are released because there is no manual work to come up with a travel plan to fit traveler's needs. The application auto-generates the travel plans for the travels.

Travel Planner is a startup aiming to provide users with travel route planning. This software helps travelers visually plan the routes with overlay and functionalities provided by Google Maps API. Due to limited resources, our MVP needs to support the following functions.

- The route planning is only for one major city (Internationally large city)
- The planning can be used for travels from 1-15 days.

- Users can search points of interests from the database and pin to the visualization of the map.
- Based on query orders, users can have a reasonable route.

We hope this Mock app can have the following features

- Clean interface.
- Clear workflow.
- Customized for users with different travel needs.
- Innovative

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[Project 3] – Laundry Management App

A community manager frequently received complaints from residents recently. When he/she went to the laundry room, lots of machines were in use, and most of them didn't have clothes taken away. To solve this problem, the manager hopes to design a website or a mobile app to help residents more effectively use the wash machine. With this application, public resources can be more effectively utilized. It takes a short time for residents who have finished washing to take their clothes away, but this application benefits people who are waiting a lot.

- Wash machines and users registration
- Bind a wash machine to the user who is using it
- Notify users the washing is complete
- Notify the community manager if the user does not come to get the clothes for a long time.
- Receive complaints

[Project 4] – Delivery Management App

Delivery services are very popular these days. An advanced delivery system allows customers to purchase products at home by simply clicking. It saves customers time and efforts. However, current delivery service requires lots of delivery people. To reduce manual work and release human resources, let's start a logistics company. We aim to use robots and drones to help people in San Francisco to deliver small to medium packages. We need a website or mobile app for this purpose.

Basic requirements

- Have a complete workflow for registration, shopping, and purchase.
- With items and delivery needs and some other basic information input from the users, delivery options can be presented

    - Route
    - Available number of robots/drones
    - Robots vs drones
- Users can choose delivery options based on their needs.
- After the delivery option is chosen, users can get confirmations for their purchases and tracking information

Advanced requirements

- Recommend the best plan to users
    - Fastest
    - Cheapest
- Add functions you think are meaningful

[Project 5] Social Network Service (Employment-oriented service)

Economic development is a crucial topic for the whole world. And Economic development is strongly related to candidates searching for jobs and companies searching for candidates. But the traditional way of submitting resumes is not always the best because gauging a candidate's capability and potential through a one-page resume is very hard. Knowing each other takes time and needs interactions. This rule also applies to jobs searching. To promote economic development worldwide, let's start by thinking about ways to help people find great jobs and help companies find great candidates. A professional social network fits well here. With this professional social network, recruiters and candidates can interact closely and know each other over time. We want to build a customized jobs recommendation system. LinkedIn is a strong competitor of ours in the market. But we can analyze users' most needs to surpass LinkedIn. Let's analyze our users most needs:

- A list to show jobs nearby
- A place where users can choose jobs they want to apply and see jobs they have applied
- Recommend new jobs based on different factors
    - Different weights for jobs that users want to apply and have already applied
    - Allow users to choose whether the system recommend based on geo-locations or not
- The product can be either a web app or mobile app
- Reference Github Job API if needed
- Clean and good-looking

[Project 6] Fast Payment Method

As most of you probably know, QR code is widely used in China. Everywhere including all the markets, street food and trading firms all use QR code, a fast payment method to finish a money transaction. No matter what you buy or sell for, you can use QR code to help you instead of carrying a lot of cash with you. Besides the usage of transactions, you can also use this technology elsewhere such as taking attendance at office. However, QR code is not quite popular in the U.S or western countries as many people may still use credit card or cash to buy groceries or do online shopping. The most related, (or we can say) similar to QR code technology is apple/samsung pay, but they are also not widely used and many merchants don't support apple/samsung pay.

Therefore, please design a fast payment method which can be widely used for the public. It can be a technology based on the credit card or a completely new method. Both works are totally fine and will be treated equally during the competition. Please first focus on how to apply this method to buy/sell a product. After that, we can discuss how to apply this technology to other areas such as office attendance, bus cards, or anything else, just like what QR code did.

If you still haven't got any idea in mind, you may want to start from QR code. Do an analysis of QR code. What is the advantage and disadvantage of this technology? Why is it not so popular in the U.S or western countries? How do we solve this problem? Or, how do we promote this kind of technology in western countries?

In the end, we want a small prototype of your product including:

1. Your core technology workflow
2. a interface mockup which can show your invented method on phone/computer
3. how to make your technology for everyone to use (advertisement/elevator pitch)
4. Your analysis for the existing product (what's good/bad what's needed to be improved)
5. Future work of your prototype

We want the prototype to be:

1. Clean and have nice user interface
2. Workflow is clear and easy to understand
3. Humanity as well as possible to achieve with reasonable funding
4. Creativity that we have never seen before

[Project 7] Amazon Grocery/Library

Amazon has acquired organic grocery supermarket Whole Foods as taking a next step in the grocery delivery market. As you guys may know, Amazon was an online website selling books or e-books. It goes from there to now Amazon, a big tech giant with many different other fields. It's just like Dangdang.com is China. But now, Amazon's business goes all the way from shipping, AWS, to smart home devices, everywhere.. and the most popular topic right now is Amazon GO, the cashier-free supermarket with no human power needed in the market.

https://www.youtube.com/watch?v=NrmMk1Myrxc

There are many different advantages of a no human power market. 1. There is no cashier so that company doesn't need to hire so many people. Thus, they can invest this money in other places. 2. People don't need to wait in lines to do grocery shopping. They can just grab and go. 3. All the things are intelligent and your personal data can be stored into your phone, so they can record what to buy for the last time, and they can recommend what will be the item that suits you next time.

So please design a no human power bookstore just like Amazon GO. It should have the ability for people to buy books, borrow books and return books any time. Please discuss what is the need for opening such a no human power bookstore, but at least, it should have no lines for checking out the book functionality. Aslo, please

consider what is the difference between books and grocery. Is it difficult or easy to open such a bookstore compared to a grocery store?

[Project 8] Last mile

Last mile problem, which is a transportation problem that has been discussed the most among the world right now. As you may know, China has mo-bike and other brand shared bikes in the big cities. But in the U.S, last mile problems are hard to achieve. Now we have Bird and Lime, two big companies in the U.S building these last mile systems in big cities in the U.S such as Los Angeles, New York or Seattle. What's different is that in the U.S we are not using bikes as sharing the last mile but we use electric scooters. However, there is a problem which is that this scooter is more expensive than a bike not only from building perspective but also from renting perspective. In addition, how to place this electric scooter in cities is another problem to solve and now many scooters have been damaged and block the traffic. So, most companies have spent a portion of money on fixing and recollecting those damaged scooters.

Please propose an idea of how to solve this last mile problem. Please consider all the different scenarios and all different kinds of money your company may need to spend. More importantly, please evaluate how this idea is applicable and reasonable to the public.

[Project 9] Intelligent Movie Theater

Nowadays, in the market, home intelligence product became more and more popular. For example, Google Home or Amazon Alexa. For those of you who haven't heard of these devices, they are just a siri put inside a home device. Right now it's more like a voice assistant plus a speaker. The functionality of them includes answering general questions you may have and open/close the lights in your room. What's more, both Alexa and Google Home can personalize some special skills, such as recording the power usage of home electronic devices and switching TV channels. Thus, this technology can be applied to most home devices and in other words, make an intelligent home. Nowadays, we can connect Alexa or Google Home to light bulbs, TV, washer, dryer, shower…and many other devices.

Please design an intelligent movie theater which don't require any manual operation. That is to say, all the functionality can be achieved by using voice assistant, including the brightness of the light, when to play the movie and how to pick the spot for customer...etc. It should perform the same as a normal theater, so please consider how to integrate a normal theater with a voice assistant. For example, there are many different brands of movie theater in U.S such as AMC, SHOWTIME… and also there are many different brands of movie factory such as FOX, Disney, so please consider how could we unify all of these different brands on one platform and one voice assistant. Aslo, please analyze the advantages and disadvantages of this intelligent movie theater. How can it impact people in what ways?

[Project 10] Schedule Optimization

As you guys know, when you guys join college, you can register any course you like without any restriction. So, you have the power to control the time schedule of each semester. It's not like high school every class, time slot is defined by the school. In college, you can choose the schedule you like, meaning that if you are a morning person, you can register for 8am classes everyday but if you are a night person, you can take all afternoon classes and your earliest class can be as late as possible. Thus, the first thing you will learn in college will be, how could I have a good class schedule. A good class schedule is really important because it can define your life and learning quality.A bad class schedule can push you not to attend the class for the whole semester. If you are usually tired at 8am in the morning, just don't register for any class at 8am.

So please design an app which can optimize your class schedule based on the preference that users entered. For example, you can choose the time you prefer to take classes either morning or night. Plus, you can choose which professor you like, the classroom you want to take this course (it's cold in winter so people don't want to walk far to the next class). So this app should have a recommendation system which can base on your personal preference, give you a recommendation of how your class schedule looks for next semester. Assume all the data can be crawled from the school database and it's accurate.

Bonus point: if the team has time, please design this app to further gain more social interaction between students so that when one student shares his or her schedule, other students can take a look and even like/comment/review the schedule. In that way, students can find who is taking the same class at the same time with them so that they can make friends with each other.