CS 764/864: Blockchains and Cryptocurrencies: Fundamentals, Technologies, and Economics
Spring 2021
Course Project
Due: April 30, 2021
Points 75
Project Teams: 1-2 students

This project is to design and implement a blockchain-based system for DMV of Virginia. DMV's current website is at https://www.dmv.virginia.gov/#/DMV2Go.

Clearly, DMV provides several services to its customers: drivers, vehicle owners, police departments, car dealers, etc. It will be impossible to implement all these services in 1 month time left for the course. Instead, you are required to concentrate on the following features.

1. Online services---vehicle registration renewal, address change, DL renewal, report a vehicle sold/traded.
2. Driver/ ID services---Practice exams, Real ID, obtaining a vital record
3. Vehicle services---Selling/donating a vehicle, Titling a vehicle in Virginia

The main idea is to design a system that is completely online---no customer agent is required. For this to happen, you need to make several assumptions about how a customer will provide the needed information and how the system will validate the information. For example, you can assume the existence of another oracle system that verifies this information or that it interacts with another blockchain with that information. You don't have to implement the other oracle or implement other blockchains.

Follow these steps.

Step 1. 30% of the project grade depends on the system design. This includes a clear design of services offered, key assumptions, some description of each service preferably explaining through examples, and using some diagrams to show how the displays would look like after implementation. This is also where you will mention external systems that you need to interact with for which you may assume oracles or other blockchains.

Step 2. 50% of the project grade depends on your actual implementation and how well it has incorporated the required services.

Step 3. 20% of the project grade depends on how well you write the final report documenting the lessons learned in the project, key decisions made, screen shots of the implementation for different services, etc.

You should implement the system using Ethereum and smart contracts. You may implement it on your own local machine or on a testnet. Choice is yours.

What to submit? (i) A complete report including screenshots (but not just screen shots) (ii) Complete code with a REDME file (iii) You MUST demo the project to me either on skype or in person.