# DECENTRALIZED ELECTRONIC VOTING SYSTEM

**Digital Assignment 1**

*Submitted by*


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Technical Answers for Real World Problems (TARP)

Under the guidance of
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# Problems Identified

## 1) Android Malware Analysis:

Android Malware is one of the biggest problems faced by the mobile industry and causes huge loss of both money and time due to malicious intents of hackers.

Detection and Mitigation of risks related to android malware is a need of the hour and we can use both static and dynamic analysis in order to solve this issue using curated Machine Learning Algorithms including Random Forest Classification and Neural Networks.

## 2) User Authentication using JWT Tokens:

A token is a piece of information that has no significance or use all alone, yet joined with the right tokenization situation, turns into an imperative player in getting your application. Token-based validation works by guaranteeing that each solicitation to a server is joined by a marked symbol which the server checks for genuineness and really at that time reacts to the solicitation. The main objective of working on this project was to make sure that the sensitive information and data of the users are kept secure and safe so that they browse and take full advantage of any web application. Since a lot of existing applications make sure that everything is secured from the server-side, we are trying to deal with all the information that is being transferred from client to server in order to perform some operations (login, browsing, searching) which is again an important aspect to save the information from vulnerabilities which can occur while the information is getting passed on from client to server. We tackle the issues with utilizing cookies to store client information. Cookies can be gotten to by some outsiders through different strategies which prompt compromise in client protection and might actually prompt spilling of this information, which is further wrongfully exchanged/sold. We track down answers to further develop security and attempt to limit these worries.

## 3) Fake News Detection:

Fake news is a highly influential means to spread lies and affect day-to-day activities including influencing election results. It is a very known fact that people get influenced by what they see and what they perceive.

We can devise the use of Machine Learning Algorithms to detect fake news using the source of news and the speech semantics specified by the author.

This can help mitigate many social risks including riots, rumors, and on a larger scale can help us reduce the influence it has on elections.

## 4) Automatic Interrogation using Machine Learning Models:

With the rise in crimes, it's getting tougher day by day for police officers to interrogate multiple suspects. We can automate this process by using Natural Language Processing (NLP) which uses the charge sheet as an input and generates the questions and answers through that. A front-end dashboard makes sure that the suspects answer those questions, we also generate a result that helps the officers on coming to a conclusion regarding the suspect's statement.

## 5) Remote Disease Diagnosis using Natural Language Processing:

In the ongoing pandemic situation, it has become very important to be careful about our health and well-being. There are no doctors available at our immediate disposal at all times during these tough times. Also, there are people in remote areas where there are hospitals and dispensaries. are sparse. This situation has led to a huge problem. The model receives replies from the user as plain text which contains the symptoms of what the user is undergoing. The reply given by the user is then used by the model to reach a particular diagnosis using existing information and data and provide the medicine and treatment to the user based on existing information and sometimes predict the exact disease. He can take the decision based on the results obtained after answering.

## 6) Decentralized Electronic Voting System:

The main issue in any Electronic Voting System is the anonymity of the voters, any leader can come into the voters to verify if they have voted for him. This hampers the democracy of the country. A Decentralized voting system will make sure that the users remain anonymous and that the votes cannot be rigged by the ill methods of booth capturing, and selling of votes.

## 7) Incentivising the gamers using NFTs:

One of the major setbacks for any gaming company is the incentives that they get once the game is sold to any of the gamers. Since the in-game purchases are very limited in number, the company is not able to make good profits. The blockchain helps in this issue, we try to introduce NFTs as the game players, and the users can trade those NFTs when the game gets more popular as the supply of NFTs is limited. With every trade, the parent company earns a specific percentage which is hard coded in the same contract deployed on the chain.

## 8) Implementing a Decentralized Autonomous Organization (DAO):

Decentralization is all about removing power from a few central authorities and distributing it in the community that is working for the betterment. DAO stands on the same principle. The members of DAO who hold an NFT can participate in voting on a specific proposal that will make an impact on the governance of the organization. DAO respects the user’s anonymity by not making anything public.

## 9) Using Metaverse for Education:

One of the biggest advantages of offline education is that it encourages teachers and extends student interaction learning beyond traditional lecture formats. Interaction stimulates questions about a topic, which aids in greater exploration and learning. As a result, if there are interactive sessions, the pupils' attention span rises. In the current pandemic situation, the online system of education has made teacher-student interaction minimal, which leads to hampering the overall development and knowledge-gaining process of the concerned child/student. In the post-COVID-19 age, video conferencing services such as Teams, Zoom, Google Meet, Skype, and others are serving as classrooms, business, and meeting platforms. Metaverse has a huge educational potential to efficiently extend the information and functions required for learning while accurately representing the real world, with the aim of overcoming constraints of currently available systems and capacity to give something new that the world desires. Aspects of the metaverse have already found their way into academic institutions. The metaverse's true revolutionary potential rests in how it enables more profit in higher education. Now that we have a better understanding of the Metaverse, we can see how this technology can change schooling. It brings together the main qualities of both offline and online education systems, such as quality engagement and accessibility, in one place. We believe it has

educational value because of the following characteristics: realistic communication space, more flexibility to create and share, new experiences, and great immersion through virtualization.

## 10) DNA sequencing using parallelization of algorithms:

DNA Sequencing is a very important field for biological studies. Since everything is getting in collaboration with the advanced technologies that we have, DNA Sequencing can be performed now by using the Waterman Algorithm, but since the calculation can take up a lot of time we use the technique of parallelization to save time by creating multiple instances of the same algorithm that can work parallelly.

## 11) Auto-Sorting Arm:

This topic aims at helping automation of the manufacturing industry and help remote access of machinery to help in-pandemic social distancing norms.
The sorting arm can ease out the process of sorting various objects in a manufacturing unit and help in contactless manufacturing and in turn atomizing the industry.

## 12) Try-Ons using AR/VR Model:

Try-Ons are a new trend now, with lenskart launching its 3-D glasses try-on models. The online shopping experience has never been so real and it helps boost the e-commerce section.
Try-Ons aims to broaden this experience to non-glass products such as clothes, shoes, and hats. This will give users an immersive experience and help them choose better products.

## 13) Human Intrusion System using Artificial Intelligence:

Crime has been on an all-time rise, and its rates continue to increase throughout the world. With an aim of reducing these crimes or even checking the rates of such instances, the human Intrusion System combines IoT with Machine learning techniques and various sensors including proximity sensors, motion sensors, heat sensors, CO2 sensors, etc. along with automation of door locking

systems, alarms, and systems to contact the concerned legal authority to provide security to the area under scrutiny at any point in time. This system is fully controllable remotely and maximum autonomy is provided to the owner, with near zero interference from the service provider, which will ensure complete transparency at all levels.

### 14) Smart Home Controller using Sensors and IoT:

Smart Home controller using sensors and IoT is a project that aims to ease the living style of individuals by providing them access to almost everything using their mobile phones.
It is a broader visualization of smart fans and smart-lightening. It can also ease the living of persons with disabilities with its self-navigation using smart sensors and GPS tracking.

## Topic Chosen - Decentralized Electronic Voting System

### Motivation:

With highly low numbers of voter turnout across various states in our country, there is a high need to turn to vote online. The issue with the online voting system still persists though, as it is subject to hacking from out-source and is easy subject to anonymity which still stands as the most crucial part of any democracy around the world.
The decentralized electronic voting system aims at mitigating this risk factor of losing anonymity and helps e-voting become a reality. Since it is decentralized, there is no central authority to rig the process of an election and all means of malpractices during the election go down with it. Further, it helps in remote voting as residents of place A currently at place B can also cast the vote, provided that they are enrolled in place A.
Electronic Voting is soon to become real and is a necessity as of now as suggested by depleting voting counts.
The added advantages that the Decentralized voting system gives include:

- No risk of booth capturing
- Act of terrorism to stop the wilful voters is reduced
- Easy to access over varied places
- Reduced cost of setting up booths in remote places

- Helps in ensuring in-pandemic norms
- Reduces the Money and Muscle power of politicians and localized results won't be displayed.

## Project Outcome:

Our end result is a ***product,*** which is essentially a couple of dashboards, one for the admin to set up the voters list, name, and candidature, and the other for the voters to cast votes for their desired candidates while staying completely anonymous. The admin will only be able to set up the election with initial data, with starting and ending timestamps. This will trigger a smart contract that will have all these values hard-coded in it and permanently deployed on the blockchain which makes it completely decentralized and distributed.