The objectives of project is to build a trust environment in a 3D (Web3) Internet

1. Use ontology to structure portfolio artifacts (PAs) systematically
2. Design and develop a platform that connects holders, certifiers or issuers, and end applications
3. Use IPFS as the decentralized data storage for the application
4. Use Express to create Certification servers
5. Use React Javascript Library to create the User Interface for the application
6. Develop Smart Contract using Solidity Programming language
7. Design and develop a consensus protocol, proof of me (PoM), to build secure
8. Design a decision expert system and develop machine learning models to build
9. Use Ganache Block Explorer to query blocks

My focus in the project is on item 4-7 from PASS+ objectives
1. Use Truffle as the development environment to create and deploy Smart Contracts
2. Use Ganache to create a localized Ethereum Blockchain network to test Smart Contracts
3. Develop Smart Contract using Solidity Programming language
4. Use React Javascript Library to create the User Interface for the application
5. Use Web3.js API to connect the front-end to the Ethereum client
6. Use MetaMask Wallet to connect the user to the Ethereum network and also validate transactions
7. Use IPFS as the decentralized data storage for the application
8. Use Express to create Certification servers
9. Use Ganache Block Explorer to query blocks

Acknowledgements

This research was performed under an appointment to the U.S. Department of Homeland Security (DHS) Science & Technology (S&T) Directorate Office of University Programs Summer Research Team Program for Minority Serving Institutions, administered by the Oak Ridge Institute for Science and Education (ORISE) through an interagency agreement between the U.S. Department of Energy (DOE) and DHS. ORISE is managed by ORAU under DOE contract number DE-SC0014664. All opinions expressed in this paper are the author’s and do not necessarily reflect the policies and views of DHS, DOE or ORAU/ORISE.