**Project Title: Design and implementation of a smart contract prototype**

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| ***Department:*** | *ICT Group* | ***Employer:*** | *Niroo Research Institute (NRI)* |
| ***Project Manager:*** | *Elahe Habibi* | ***Project Code:*** | PLWPN01 |

***Project Staff****:*

**Project Summary:**

Supervisory organizations play the third-party role in the contracts. These organizations are exist to ensure that the parties of the contract are fully compliant with the provisions. Trusting a supervisory or any other intermediary also involves risks. For example, it is possible to change the decisions of the supervisory in favor of one of the parties to the contract. In some cases, the existence of such entities may not be a complete guarantee for the full implementation or full payment of all terms of the contracts.

With the development of technology, a new type of contract has emerged, known as the smart contract. The smart contract is very similar to the physical contract, except that the smart contract is digitally created and automated by a computer program. Given the smart contract executed by computers, it is unlikely that either party can change the way the contract is executed. Smart contracts can be used in a variety of areas such as elections, financial institutions and banks, insurance, governments, real estate, media, health services and more.

Smart contract was first introduced by Nick Sazbo in 1994. The smart contract allows the creation of authentic, uninterrupted transactions that are traceable and irreversible. The smart contract can be executed automatically with lower cost and higher performance. On the other hand, because the smart contract is distributed intelligently across all the nodes in the network, it causes the secure contract. Other benefits include high precision and transparency. In contrast, issues such as unclear legal rules, high cost of specialist workforce, and the possibility of human error in contract implementation are some of the barriers to smart contract.

Smart contracts, which contain all the information about the terms of the contracts and the execution of all targeted actions, execute transactions and processes in a fully guaranteed manner, without third parties and automated. By this way all activities can be tracked in smart contracts.

**Project Results:**

In the present project, the feasibility of applying this technology is studied and researched in the field of smart contract, and then a prototype of the smart contract is designed and implemented on the basis of a legal contract of the Niroo Research Institute (NRI). The final part of the project is the feasibility study of the smart contract application in the electricity industry and some other sample organizations:

* Study the types of smart contracts, applications, advantages and disadvantages
* Smart contract implementation technology
* Transparency of a legal contract sample at Niroo Research Institute (NRI)
* Design and implement an applicable prototype of a smart contract based on a law firm contract
* Intelligent Contract Applications in Iran Power Industry
* Smart Contract Applications in 3 Organizations (Out of Power Industry) in Iran

**Project Documentation:**

Phase 1: "Identifying the smart Contract ", Information and Communication Technology Research Group, NRI, 1397.

Phase 2: "Design and implementation of a smart contract prototype", Information and Communication Technology Research Group, NRI, 1398.

Phase 3: "Feasibility of using smart contract", Information and Communication Technology Research Group, NRI, 1398.