**ABSTRACT**

The blockchain technology is a relatively new approachin the field of information technologies. As one of its first implementations, bitcoin as a cryptocurrency has gained a lot of attention. Together with Ethereum, blockchain implementation with focus on smart contracts, they represent the very core of modern cryptocurrency development. Smart contracts that build up on blockchain tech-nologies are receiving great attention in new business applications and the scientific community, because they allow untrusted parties to manifest contract terms in program code and thus eliminate the need for a trusted third party. The creation process of writing well performing and secure contracts in Ethereum, which is today’s most prominent smart contract platform, is a difficult task. Research on this topic has only recently started in industry and science. Based on an analysis of collected data with Grounded Theory techniques, we have elaborated several common security patterns, which we describe in detail on the basis of Solidity, the dominating programming language for Ethereum. The presented patterns describe solutions to typical security issues and can be applied by Solidity developers to mitigate typical attack scenarios.

We attempt to predict the Bitcoin priceaccurately taking into consideration various parameters that affect the Bitcoin value. For the first phase of our investigation, we aim to understand and identify daily trends in the Bitcoin market while gaining insight into optimal features surrounding Bitcoin price. Our data set consists of various features relating to the Bitcoin price and payment network over the course of five years, recorded daily. For the second phase of our investigation, using the available information, we will predict the sign of the daily price change with highest possible accuracy.

Hence, we develop a blockchain network for getting funds from the investors for the organization with the help of solidity and ethereum by building a cryptocurrency and smart contract for the secured transaction between the investors and the organization. For understating the price of bitcoin or cryptocurrency, we do bitcoin price prediction using machine learning.