



# Blockchain Technology Adoption On College Campuses

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## Background

This research project examines the use of Blockchain technology. This technology is one of the cashless technologies that uses virtual currencies as a form of payment such as the cryptocurrency Bitcoin. Today, many industries and individuals are trying to adopt new technologies. The technologies must promote better transparency and enhanced security to overcome those issues with current payment methods.

## Purpose

The purpose of this project is to show how the adoption of Blockchain can facilitate and secure payments inside the campus.

## Results

The researcher was able to create the Blockchain, shopping website, and the Android mobile app.

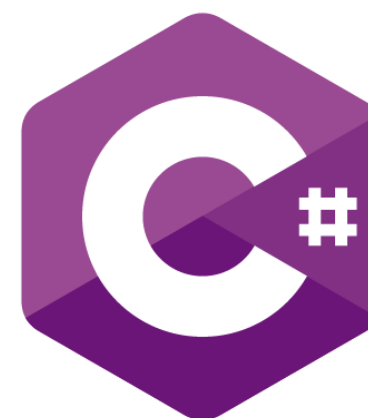
- The Blockchain was able to connect to the Bitcoin network, mine transactions inside the network and generate the next block.
- The Blockchain client was able to generate wallets and view the transactions made into the network.
- The shopping website was able to communicate with the Blockchain and was able to deduct the amount from the purchaser's wallet and send the transaction to the Blockchain.
- The Android mobile app was able to communicate with both the Blockchain and the shopping website.

From user's perspective:

- users could interact with the Blockchain locally by making purchases from the shopping website using the connected Android mobile wallet to the local network.
- Users are required to setup their wallets using both the private and public keys.

## Instrumentation

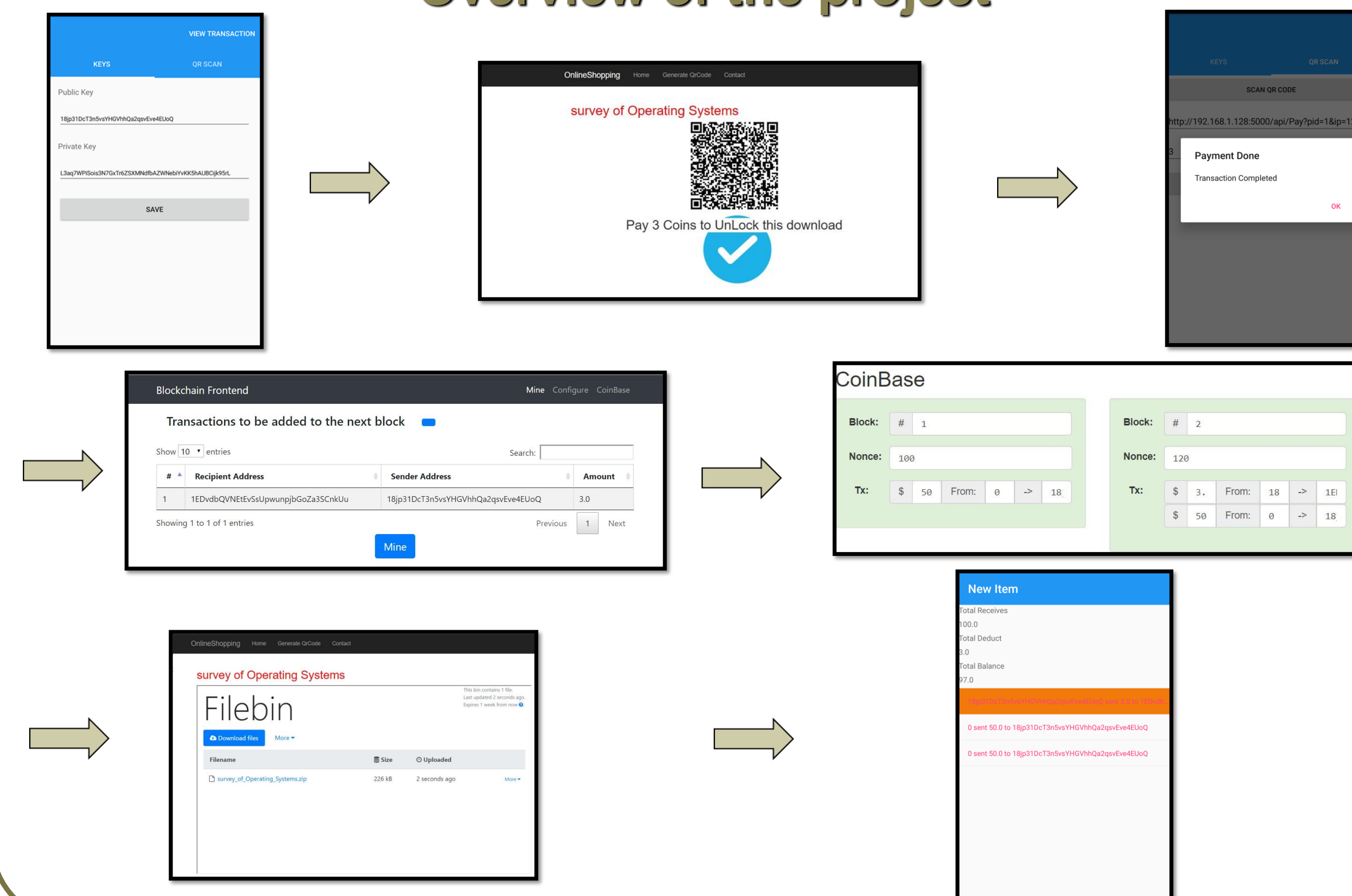
- C#
- Visual studio 2019 version 16.2.5
- NuGet
- NBitcoin
- Newtonsoft.Json
- asp.net
- SignalR
- JQuery QR
- Xamarin apps
- Xaml
- Zxing
- Android device



Visual Studio



## Overview of the project



## Method & Procedure

This project consists of three major parts but first of all, this project needs the following configuration to be installed along with Visual Studio community version 16.2.5 from the workload.

- ASP.NET and web development which includes .NET framework
- Data storage and processing
- Mobile Development with .NET which necessary for the app development since it includes the Xamarin tools.
- Blockchain Client Application, create the Blockchain project, api and configure it with ASP.NET core Web selection that was installed during the installation of Visual Studio.
- Marketplace website, create the marketplace website, several steps were taken. The project was configured by the selection of the ASP.NET core Web Application that was installed during the installation of Visual Studio.
- Mobile app wallet, create the Mobile app wallet project, several steps were taken. The project was configured by the selection of the Cross-platform Mobile App Xamarin which was installed during the installation of Visual Studio and using the default Master-detail template.

## Future Research

- Enhance the user's experience by developing a more engaging front-end.
- A more stable connection across platforms is needed to promote stability of this project
- extend the development of this mobile wallet to cover other platforms such as iOS and Windows Phone.
- Enhancing the security of the websites and the mobile wallet to ensure a secured connection between platforms.
- can extend the use of this project to be used in different areas other than payments.