



ELECTRONIC VOTING

User Manual



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STAKEHOLDERS

Epi-Use Advance Roelof Nuade

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1 General Information

1.1 System Overview

Electronic Voting, or eVoting for short, is a system which does exactly what the name suggest. It allows members of a demographic country to vote for a political party during an election period. It does so that each vote is completely anonymous by using Blockchain technology.

The system is usable via an online web page and an Android(4.4+) application.

There are essentially 4 types of users: An Administrator, a Political Party, an Activator and a Voter. Each having their own dedicated functionality. An administrator user can add a political party user, add an activator user, and deactivate a voter account. A political party account can only check the number of votes they currently have. An activator can only activate a user. And a voter can cast votes.

In order to make Electronic Voting safe and trustworthy, the activator user is needed. Initially when a new user is registered, they will automatically be 'deactivated', which prevents them from casting any type of vote. This is to prevent a voter from creating a bunch of fake accounts and using those fake accounts to vote multiple times. An activator first need to verify the identity of a voter by providing proof of identity (a drivers license or ID document), after which a voter is then activated and will be granted 2 votes: one vote for a national party, and one vote for a provincial party.

If a user has not registered yet, they can do so on the web site or on the Android application. Upon registration, the user need to provide: a valid ID number, a password used to log into the system, a name, a surname, the location their registered in (pre defined list of values eg. Pretoria, Johannesburg etc), a mobile number and an email address. A voter is the only user type that can register itself, an activator, political party and administrator can only be added by an existing administrator.

The beautiful part of eVoting is that it uses Blockchain technology, the same technology used in the famous Bitcoin currency. A blockchain is a distributed database that maintains a continuously-growing list of records called blocks secured from tampering and revision. A more indepth description is beyond the scope of this document.

1.2 System Configuration

1.3 Installation

eVoting Android Application

Step 1 Go to Settings. Step 2 Go to Security. Step 3 Scroll down and check Unknown sources box. Step 4 Tap OK when it show the warning. All Done, Now you can install 3rd party Apps through APK files on your device with Android 4.0+ OS.

Step 5 - Go to the eVoting App in your file manager and click on it. Step 6 - Click on the AeVoting APK and APK manager will open. Step 7 - Accept all permissions. Step 8 - The eVoting icon will appear your home screen. Step 9 - The application has been installed.

The website does not need installation and need only the be viewed inside a web browser which supports HTML5 and Javascript.

2 Getting Started

Getting started with the Android app:

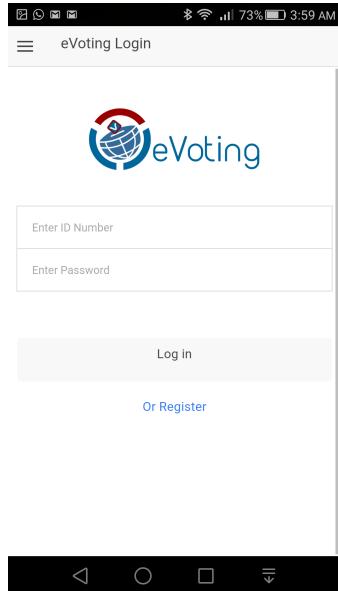


Figure 1: Landing Page

First the user needs to register by clicking on the "Or Register" button at the landing screen.

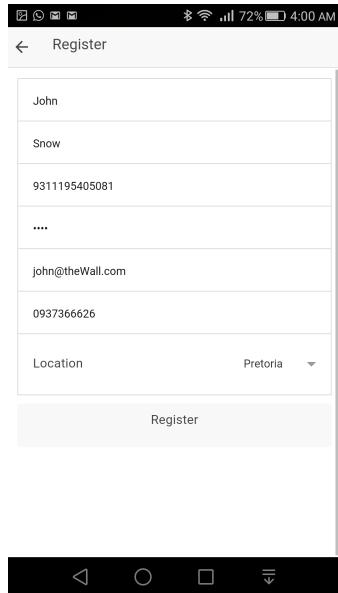


Figure 2: Register

The user then needs to fill all of the fields then click "Register". Note that no duplicate ID number, email address or mobile number is allowed. If the app gives a popup message stating that the registration is successful, he/she must go back to the landing screen, and log in with their credentials.

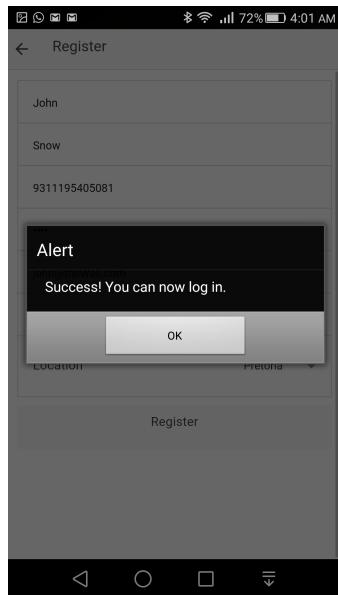


Figure 3: Registered

The user will then be taken to the home screen. More detail about the home screen can be found in section 6. The app has a side menu which can be accessed by swiping right while logged into the system.

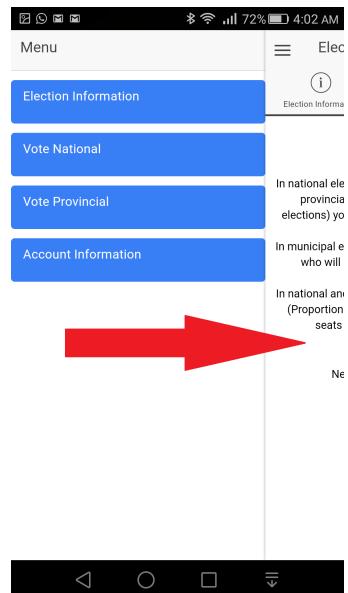


Figure 4: Side Menu

To log out of the system, and tap on "Account Information" in the side menu. Here all of the user's details can be found, as well as a "Log out" button.

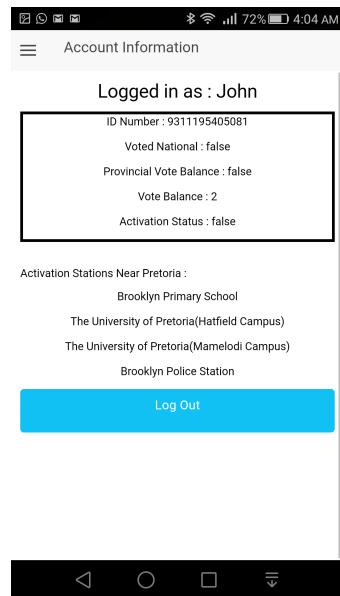


Figure 5: Logout Location

3 Using the System

Android

The home screen is the first page after logging into the system.

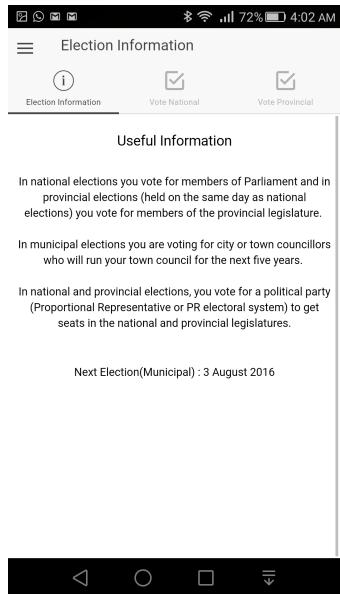


Figure 6: Home Screen

At the top of the screen is a menu with 3 buttons: Election Information, Vote National and Vote Provincial. Each button will redirect the user to another screen. The user is on the Election Information screen directly after logging in. When the user clicks on Vote National, he/she will be taken to a screen of a list of all the running political parties.



Figure 7: Vote Provincial



Figure 8: Vote National

At each of the above screens, the user can view a party's information and cast a vote for a party. The user only has 1 for a national election, and 1 vote for a provincial election.

If a user hasn't voted before, and clicks on "Cast Vote" (either national or provincial) the following screen should appear:

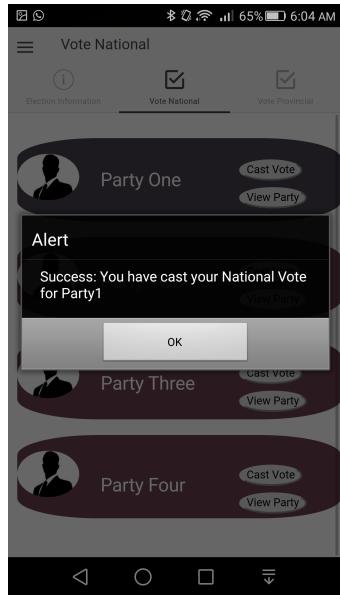


Figure 9: Successful Vote

The image at figure 32 will be shown if a user has already voted and tries to vote again.

WebApp

Activator

The login page has 2 input boxes for the ID and Password - respectively and a selection box for the type of user attempting to log in. The options in the selection box are user type; Voter, Activator, Admin, Party.

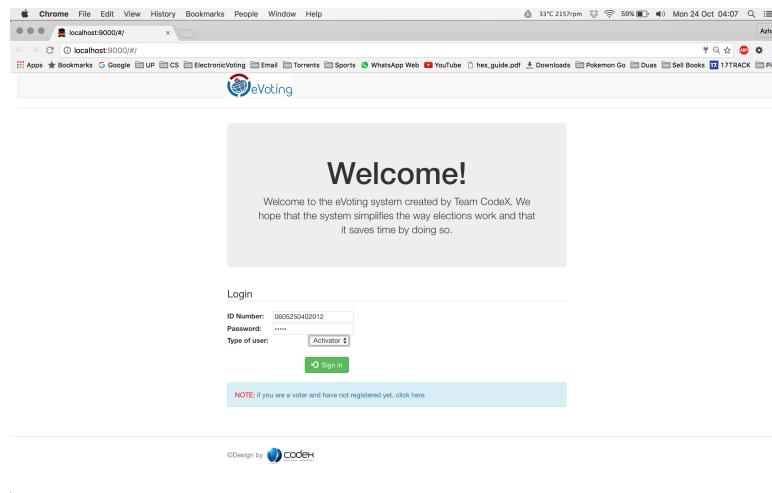


Figure 10: Activator Login

The Activator selects that user type from selection box, and after a successful login, an alert pops with the name of activation station.

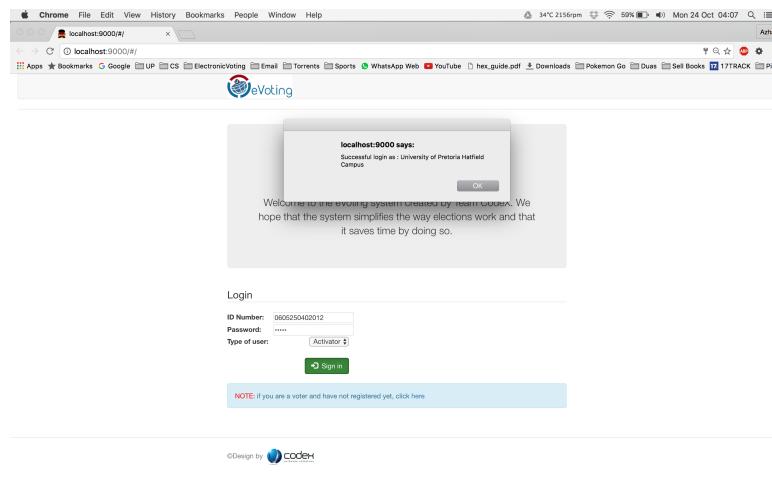


Figure 11: Activator Successful Login

They are then brought to a screen where they can enter the ID of a voter who wishes to be activated to vote. The page has an input box for capturing the ID number of the voter. After the activator presses the "Find" button, the system attempts to retrieve a voter who wishes to be activated and they are alerted once this person is found.

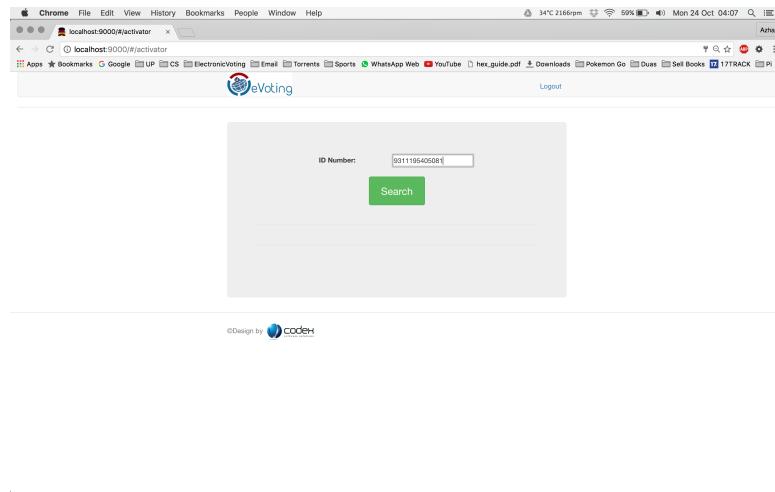


Figure 12: Activator Search

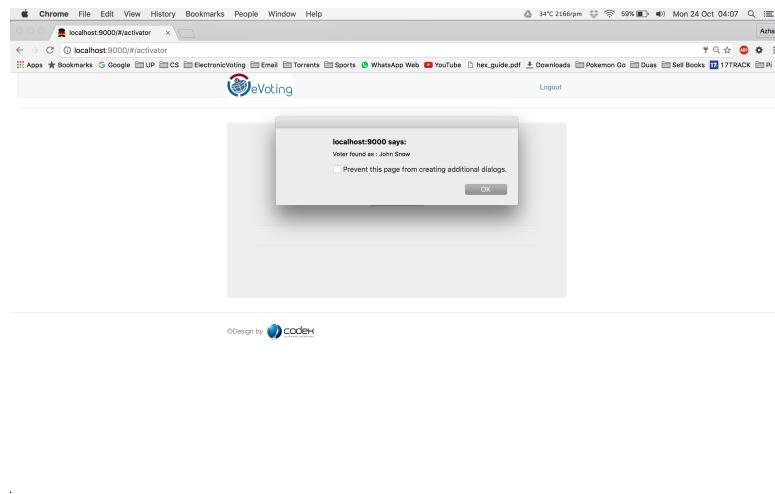


Figure 13: Activator Found User

Once the voter has been found, their details are displayed for the Activator to confirm the details. An "Activate" button shows which when pressed will change the retrieved voters state to activated.

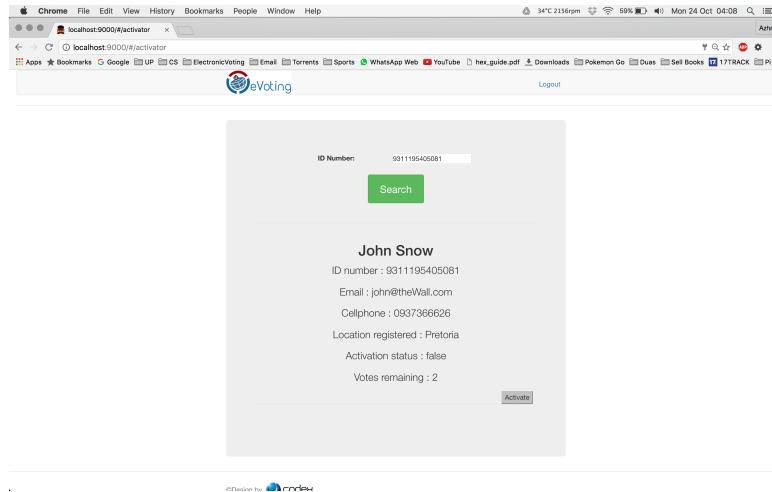


Figure 14: Activator Display

The activation is confirmed by a pop with an appropriate message.

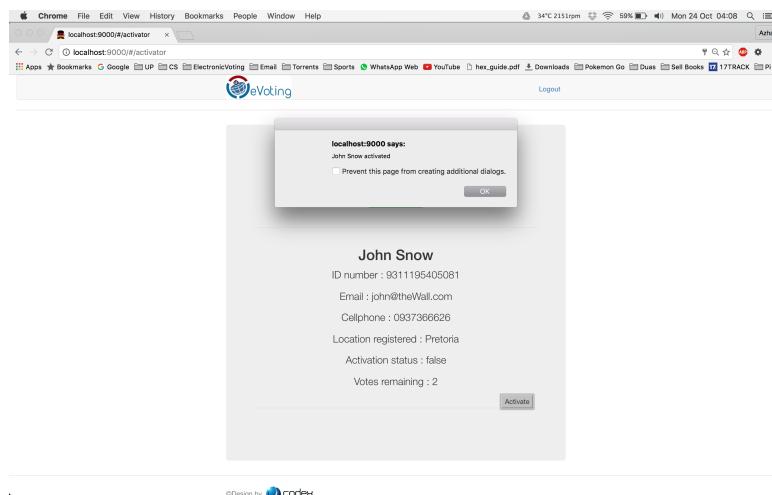


Figure 15: Activator Activated

Party

Once the Political Party logs in they are able click the "Get Stats" button to retrieve their current National and Provincial Votes.

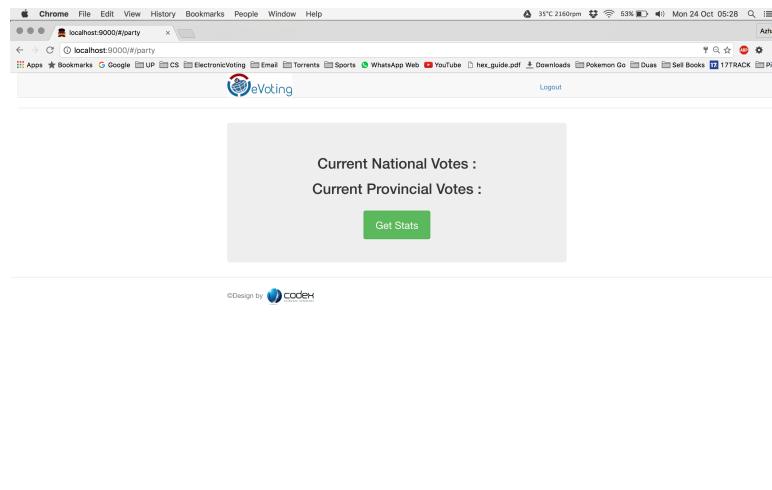


Figure 16: Party Get Stats

Voter

After a successful Voter Login, they are greeted with their name and two buttons to either view their account information or cast votes.

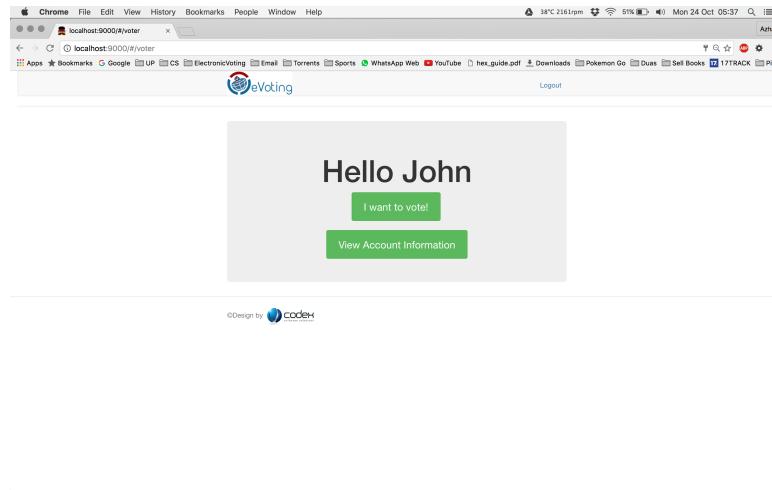


Figure 17: Voter Successful Login

Once the "I want to vote!" button is clicked, you are given two options; to either vote national or vote provincial.

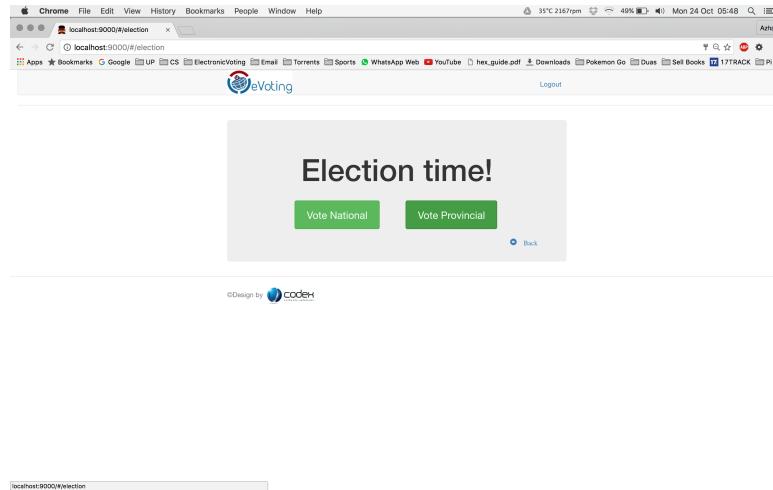


Figure 18: Voter Interface

"I want to vote!" Depending on which option is chosen, a new page will load with all the potential candidates you can vote for. With two options for both, "Cast Vote" or "View Party" details. Press "Cast Vote" to vote for that party.

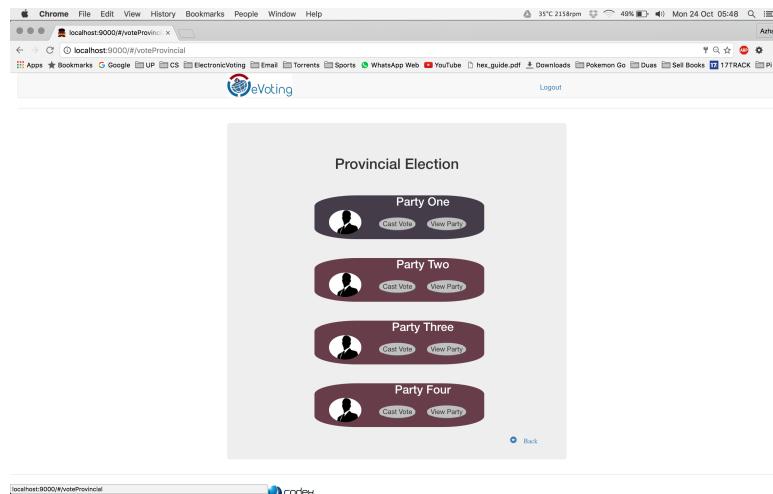


Figure 19: Voter Provincial Vote

A prompt telling you that your vote is being cast will pop up.

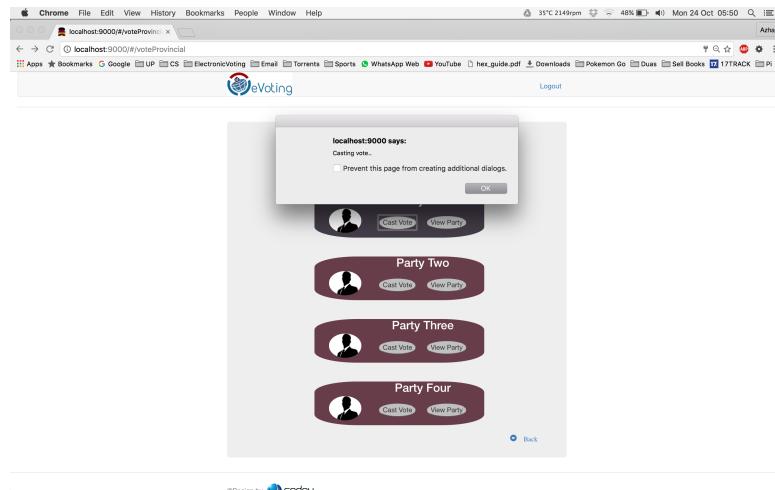


Figure 20: Voter Cast Vote

After which a success or failure message will appear.

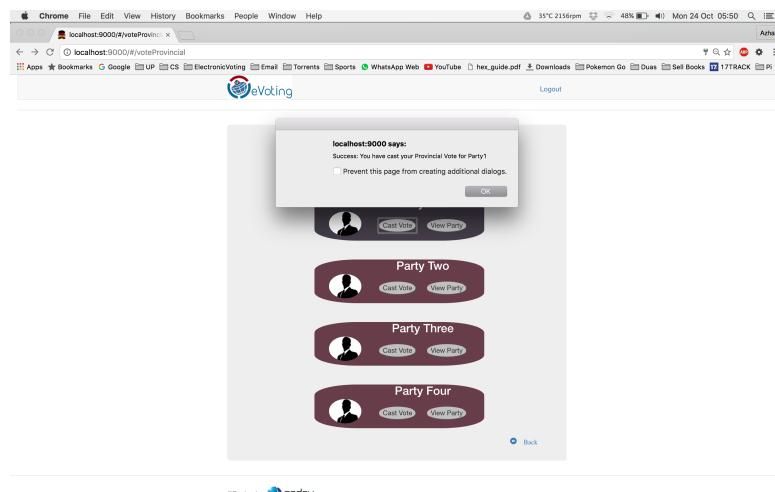


Figure 21: Voter Vote Success

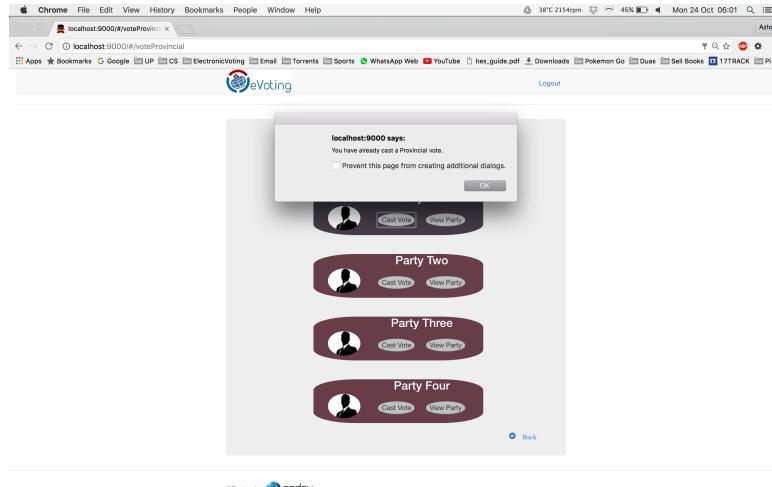


Figure 22: Voter Vote Failed

”View Account Information” This button allows users view their information on the system, like their activation status.

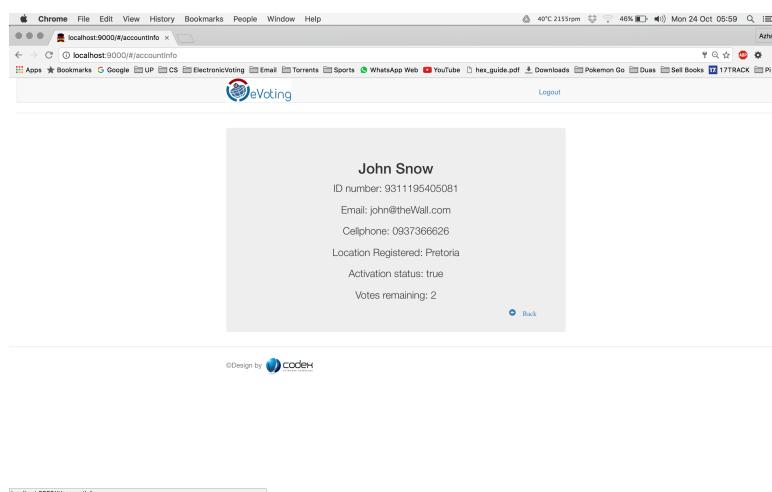


Figure 23: Voter Information

Admin

After a successful login, Admin has an option to either add a user or deactivate a user.

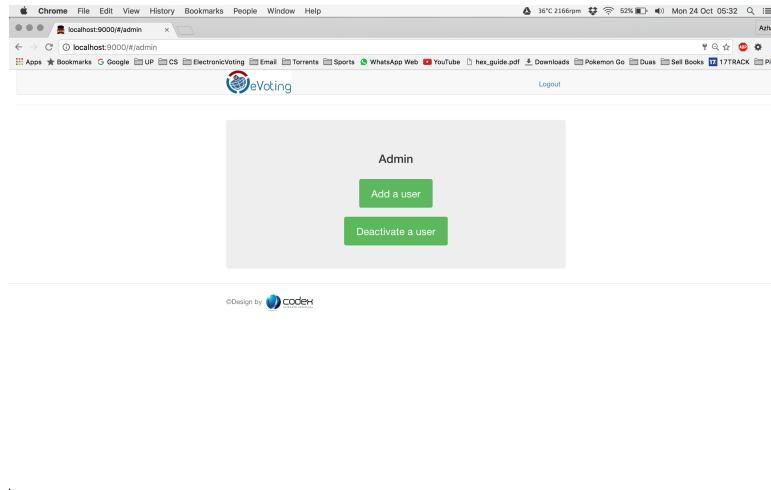


Figure 24: Admin Successful Login

The Admin can select the type of user to add. After selecting the type of user the relevant details for each selection will appear.

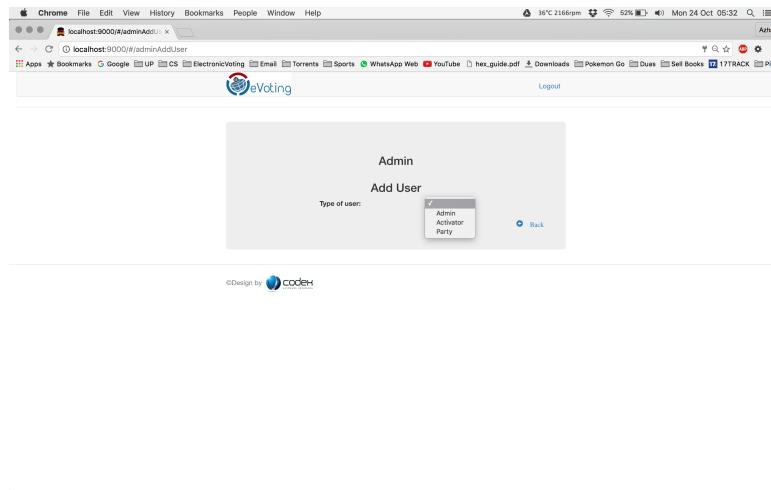


Figure 25: Admin Select User Type

The screenshot shows a web browser window with the URL `localhost:9000/#/adminAddUser`. The title bar says "Admin". The main content area is titled "Add User". A dropdown menu labeled "Type of user:" is set to "Admin". Below it, there are input fields for "ID Number" (set to "123456"), "Password" (redacted), "Name" (set to "John"), "Surname" (set to "Doe"), "Location registered" (set to "USA"), "Cellphone" (set to "081234567890"), and "Email" (set to "john.doe@gmail.com"). At the bottom are two buttons: a green "Register" button and a blue "Back" button.

Figure 26: Admin Add Admin

The screenshot shows a web browser window with the URL `localhost:9000/#/adminAddUser`. The title bar says "Admin". The main content area is titled "Add User". A dropdown menu labeled "Type of user:" is set to "Party". Below it, there are input fields for "ID Number" (set to "123456"), "Password" (redacted), "Name" (set to "Phone"), "Description" (set to "Mobile Phone"), and "Image URL" (set to "Image URL"). At the bottom are two buttons: a green "Register" button and a blue "Back" button.

Figure 27: Admin Add Party

Deactivate User The page has an input box for capturing the ID number of the voter.

The screenshot shows a web browser window with the URL `localhost:9000/adminDeactivateUser`. The page title is "Admin Deactivate User". It features a search form with a text input field labeled "ID Number:" and a green "Search" button. Below the form is a "Back" link. At the bottom left, there is a copyright notice: "©Design by codex".

Figure 28: Admin Deactivate User

After the Admin presses the "Search" button, the system attempts to retrieve a voter who must to be activated and they are alerted once this person is found.

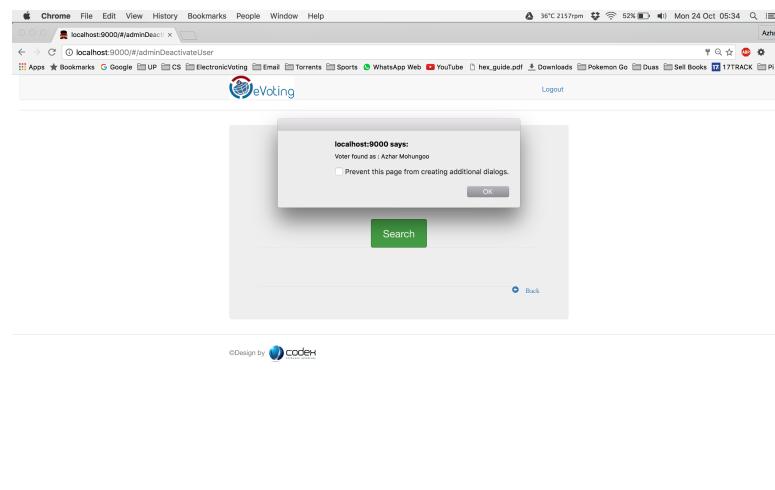


Figure 29: Admin Alert User

Once the voter has been found, their details are displayed for the Admin to confirm the details. An "Deactivate" button shows, which when pressed will change the retrieved voters state to inactive.

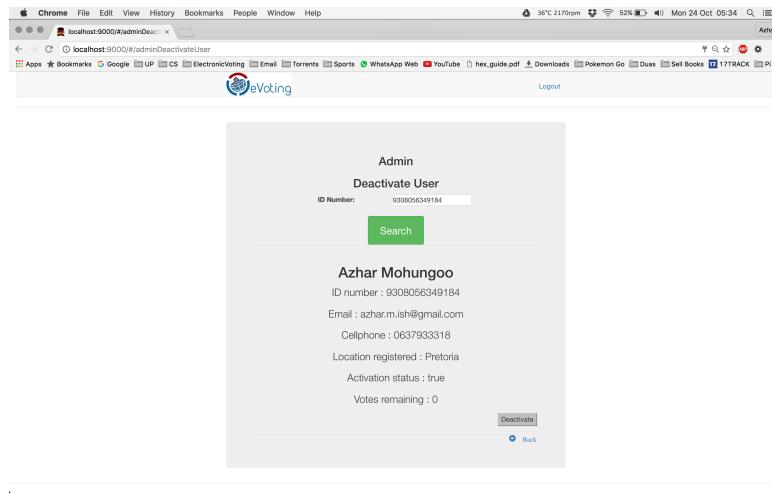


Figure 30: Admin Display Voter Details

The deactivation is confirmed by a pop with an appropriate message.

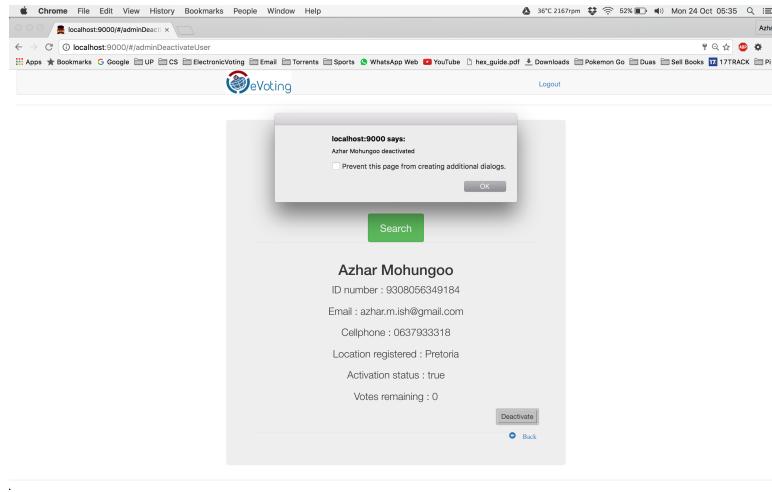


Figure 31: Admin Deactivated Voter

4 Troubleshooting

The backend prevents a user from casting multiple votes. So if a user tries to vote again, the following message will appear:

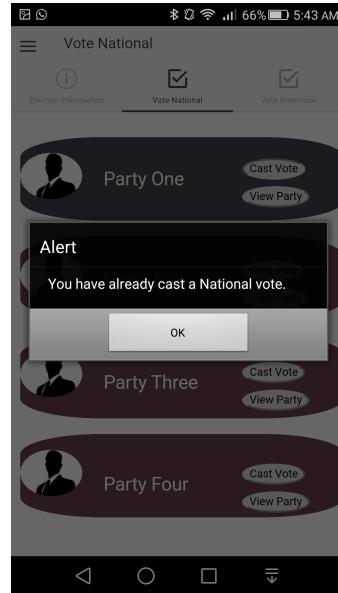


Figure 32: Already Voted