



Documentation

cyphertrip

August 2020



Presented by

Manoj M

ced-b4-g05



Introduction & Background

A blockchain-based User incentive scheme to promote public modes of transport

cyphertrip aims at promoting public means of transport in order to reduce carbon emission. It is trying to incentivise those who are using public means . It does that by issuing a new token called TripToken, "TRIP" and awarding those to commuters based on their savings on carbon emission.



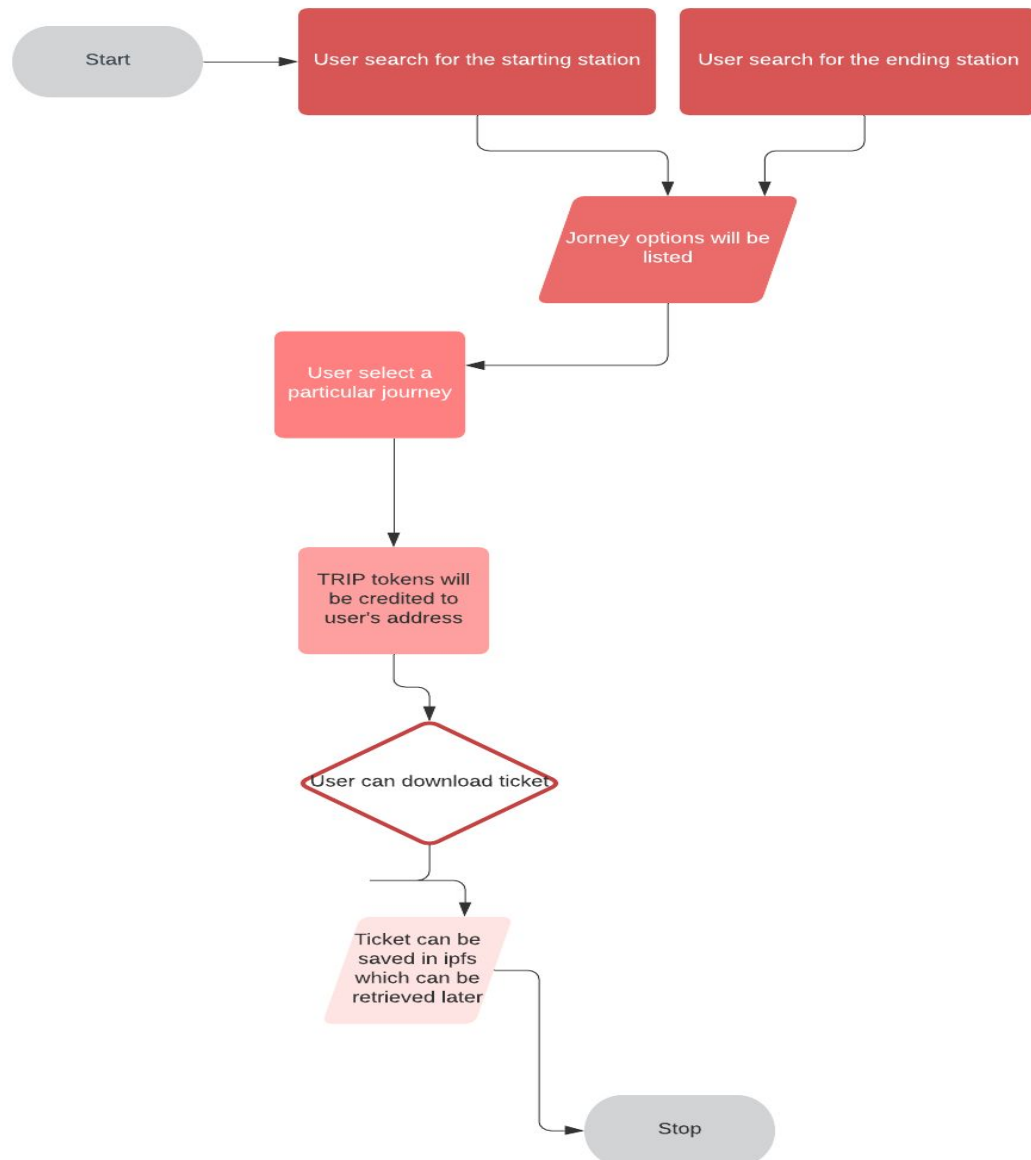
Project Description

The project is composed of the followings:

1. Smart contract (solidity)
2. Dapp (React App)
3. Documentation

Dapp workflow

Dapp flowchart



1. Home screen

The screenshot shows the 'cyphertrip' web application running on a local host. The page has a header with the 'cyphertrip' logo. Below the header, there are two main sections. On the left, a 'PLAN YOUR TRAVEL' form contains three input fields: 'Origin', 'Destination', and 'Date of travel:'. The 'Date of travel:' field is populated with '1/8/2020 16.08' and includes a calendar icon. Below these fields are two buttons: 'SEARCH' and 'RESET'. On the right, there is a button labeled 'SELECT YOUR ROUTE'.

2. User select 'From' station

This screenshot shows the same 'cyphertrip' web application, but with the 'PLAN YOUR TRAVEL' form's 'Origin' field dropdown menu open. The dropdown list contains the following suggestions:

- 9 rue abe
- 9 Rue Abel (Paris)
- 9 Rue Abel Hovelacque (Paris)
- 9 Rue des Abbesses (Paris)
- 9 Rue Paul Abadie (Paris)
- 9 Rue Abel Gance (Paris)
- 9 Rue Abel Ferry (Paris)
- 9 Rue Abbé Faria (Marseille)
- 9 Rue Abram (Marseille)
- 9 Rue des Abeilles (Toulouse)

The 'SELECT YOUR ROUTE' button remains visible on the right side of the page.

3. User select 'To' station

The screenshot shows a web browser window with the URL `localhost:3000`. The page has a header with the `cyphertrip` logo. The main content area is divided into two sections. The left section, titled `PLAN YOUR TRAVEL`, contains a form with three input fields. The first field is labeled `9 Rue Abel (Paris)`. The second field is labeled `69 Quai Branly (Paris)`. The third field is labeled `Date of travel:` and contains the text `1/8/2020 16.08` with a clear button (X) and a calendar icon. Below the form are two buttons: `SEARCH` and `RESET`. The right section, titled `SELECT YOUR ROUTE`, is currently empty.

4. Both stations selected

The screenshot shows the same web browser window as in the previous image. The `PLAN YOUR TRAVEL` form now has both the `9 Rue Abel (Paris)` and `69 Quai Branly (Paris)` stations selected. The `Date of travel:` field remains `1/8/2020 16.08`. The `SEARCH` and `RESET` buttons are still present. The `SELECT YOUR ROUTE` section remains empty.

5. Search for the available journeys

The screenshot shows the cyphertrip web application in Google Chrome. The browser address bar shows 'localhost:3000'. The page has a header with the 'cyphertrip' logo. The main content is divided into two columns. The left column, titled 'PLAN YOUR TRAVEL', contains three input fields: '9 Rue Abel (Paris)', '69 Quai Branly (Paris)', and 'Date of travel: 1/8/2020 16.08'. Below these fields are 'SEARCH' and 'RESET' buttons. The right column displays two search results. The first result shows a date of '2020:08:01', a price of '1.9 €', a time range of '12:40:40 >13:23:35', and travel times of 16min7s (walking), 26min48s (train), and a total of 42min55s. It also shows a CO2 emission of 26, a Max CO2 emission of 1543, and a TRIP earned of 15. The second result shows the same date and price, but a different time range '12:40:18 >13:23:35' and travel times of 22min17s (walking), 21min0s (train), and a total of 43min17s. It also shows a CO2 emission of 24, a Max CO2 emission of 1543, and a TRIP earned of 15. Both results have a 'SELECT JOURNEY' button.

6. Select a particular journey

The screenshot shows the cyphertrip web application in Google Chrome. The browser address bar shows 'localhost:3000'. The page has a header with the 'cyphertrip' logo. The main content is divided into two columns. The left column, titled 'PLAN YOUR TRAVEL', contains three input fields: '9 Rue Abel (Paris)', '69 Quai Branly (Paris)', and 'Date of travel: 1/8/2020 16.08'. Below these fields are 'SEARCH' and 'RESET' buttons. The right column displays two search results. The first result shows a date of '2020:08:01', a price of '1.9 €', a time range of '12:40:18 >13:23:35', and travel times of 22min17s (walking), 21min0s (train), and a total of 43min17s. It also shows a CO2 emission of 24, a Max CO2 emission of 1543, and a TRIP earned of 15. The second result shows the same date and price, but a different time range '12:40:32 >13:30:37' and travel times of 13min13s (walking), 36min52s (train), and a total of 50min5s. It also shows a CO2 emission of 960, a Max CO2 emission of 1543, and a TRIP earned of 15. Both results have a 'SELECT JOURNEY' button.

NB: Since a not found error is yet to be implemented please select '9 rue abel' for the from station and '69 quai branly for the to station. The app make use of Navitia api for route detection. So only those stations listed there will be available.

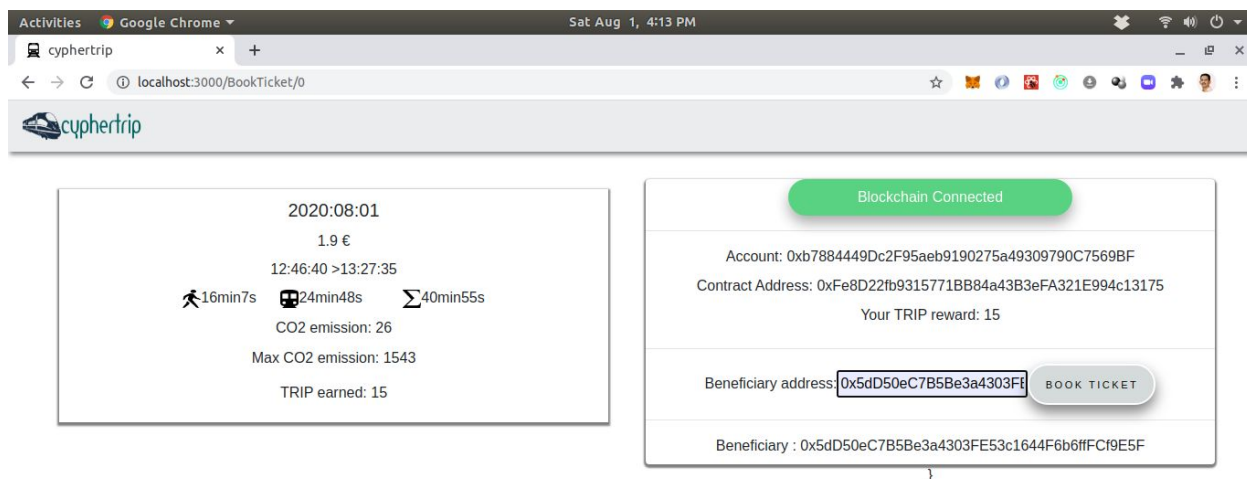
7. Connecting blockchain

The screenshot shows the cyphertrip web application in Google Chrome. The left panel displays trip details for the date 2020:08:01, a price of 1.9 €, and a schedule from 12:46:40 to 13:27:35. It also shows travel times (16min7s, 24min48s, 40min55s), CO2 emission (26), Max CO2 emission (1543), and TRIP earned (15). The right panel has a red 'Connect Blockchain' button at the top. Below it, the 'Account:' section shows 'Contract Address:' and 'Your TRIP reward: 15'. The 'Beneficiary address:' field is empty, and a 'BOOK TICKET' button is to its right. At the bottom, the 'Beneficiary :' field is also empty.

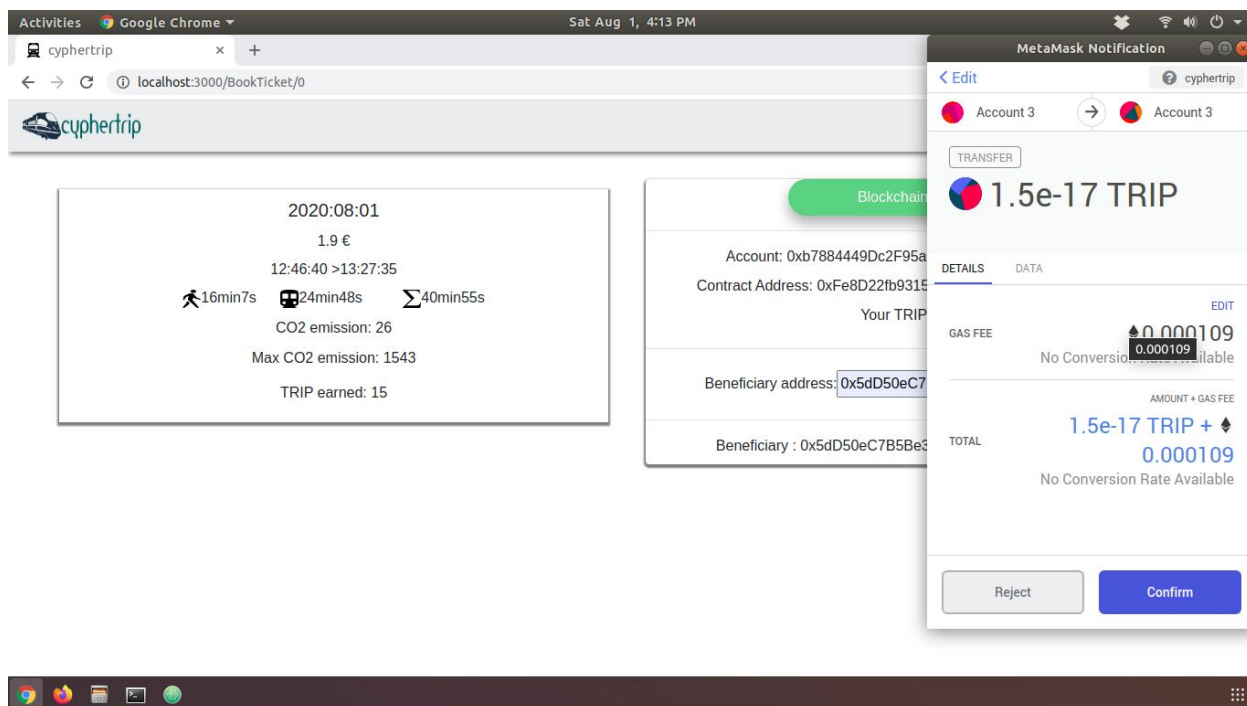
8. Connected blockchain

The screenshot shows the cyphertrip web application in Google Chrome, now with the blockchain connected. The left panel is identical to the previous state. The right panel now has a green 'Blockchain Connected' button at the top. Below it, the 'Account:' section shows the 'Contract Address: 0xb7884449Dc2F95aeb9190275a49309790C7569BF' and 'Your TRIP reward: 15'. The 'Beneficiary address:' field is empty, and a 'BOOK TICKET' button is to its right. At the bottom, the 'Beneficiary :' field is also empty.

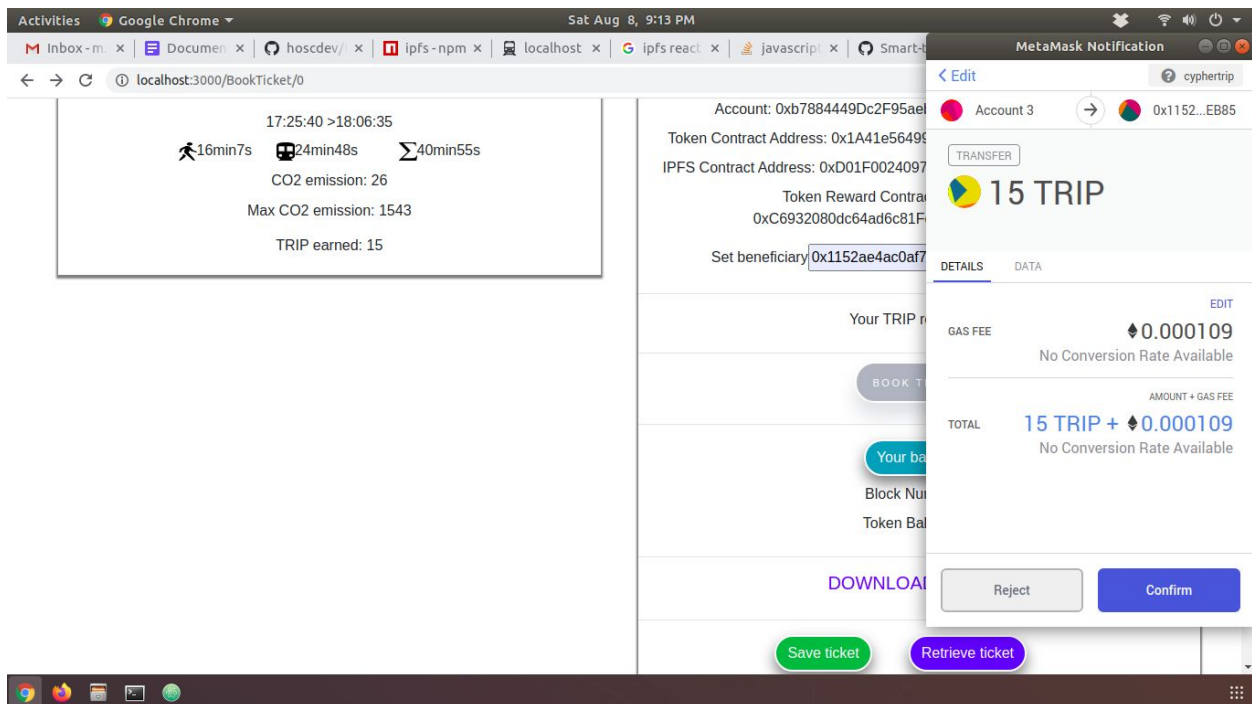
9. Set the beneficiary beneficiary (please select an address other than the token owner for the beneficiary)



10. Set beneficiary will invoke the TokenReward smart contract

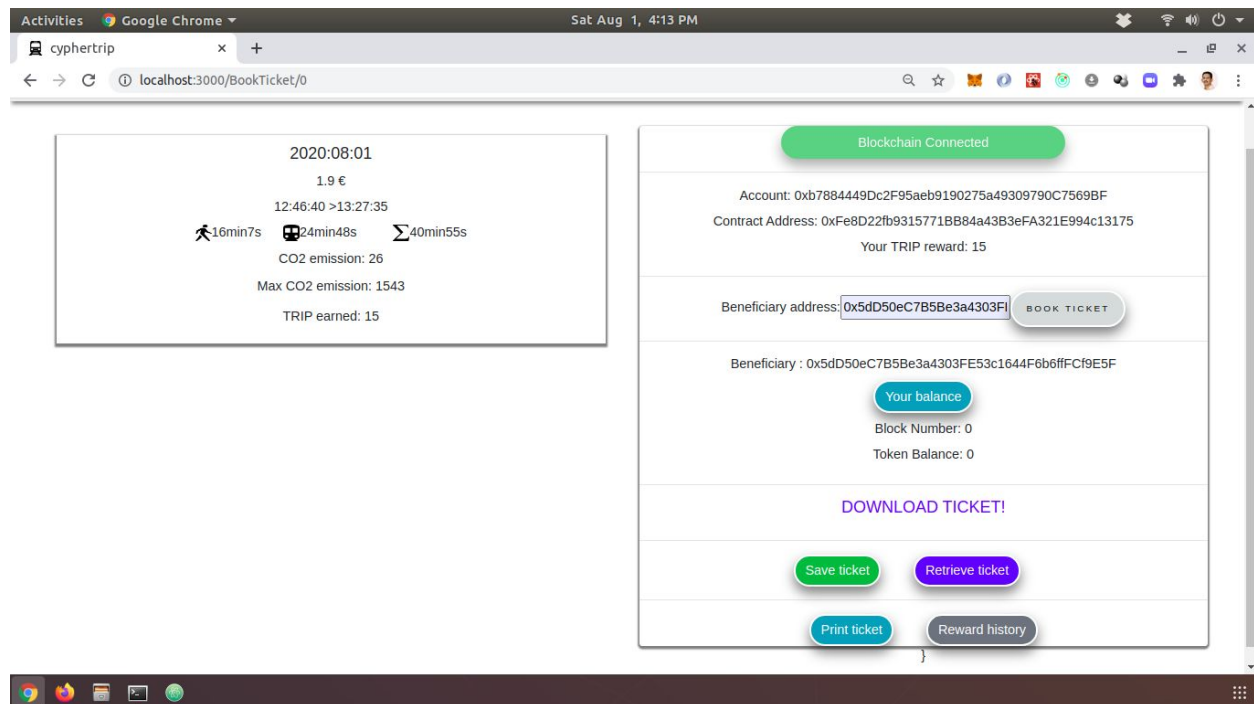


11. Book Ticket will invoke TripToken smart contract

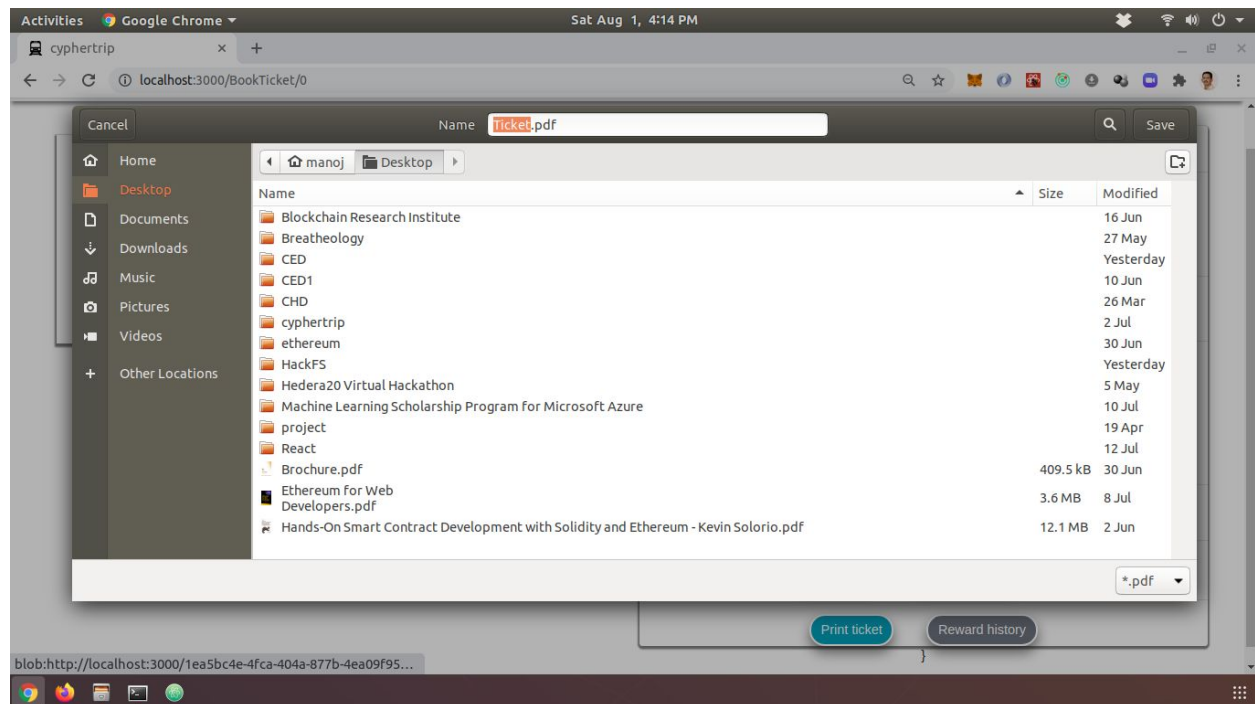


12.

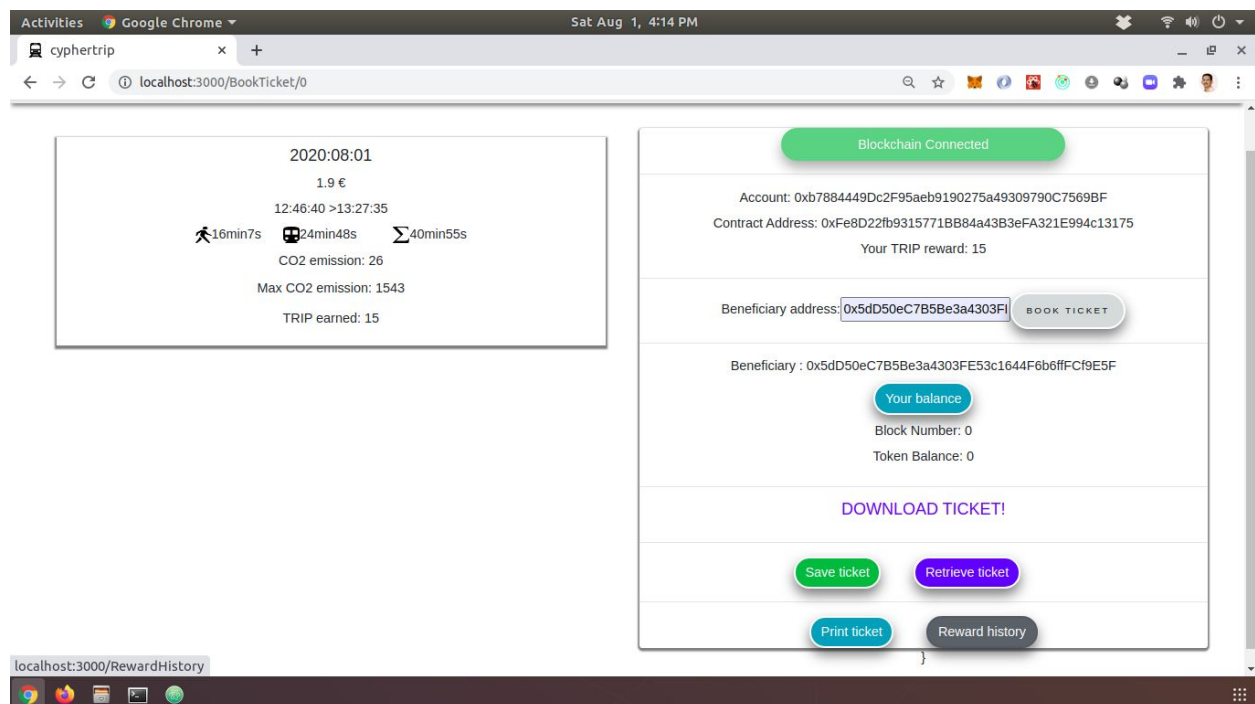
13. Download the ticket



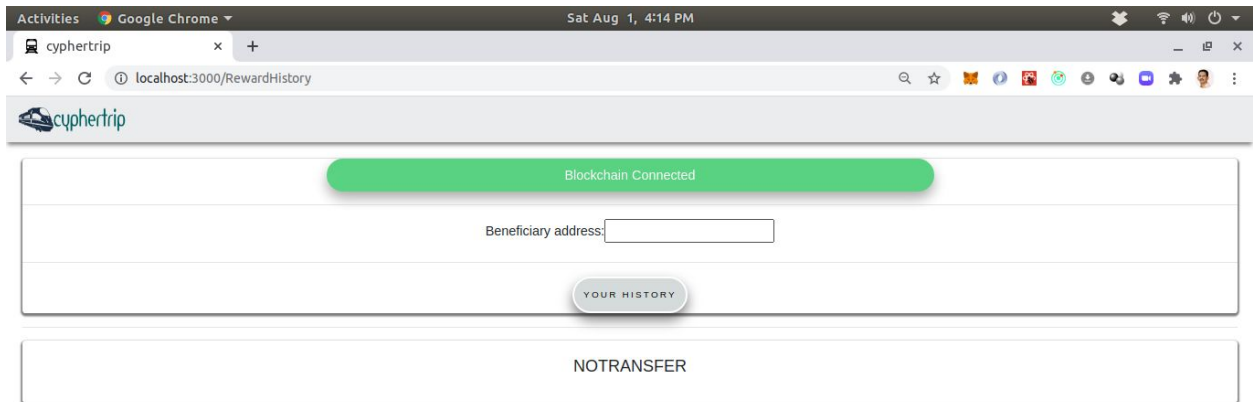
14. Save ticket to ipfs (some errors - not implemented)



15. View Reward history



16. Select the account to view ticket



Activities Google Chrome Sat Aug 1, 4:14 PM

cyphertrip

localhost:3000/RewardHistory

cyphertrip

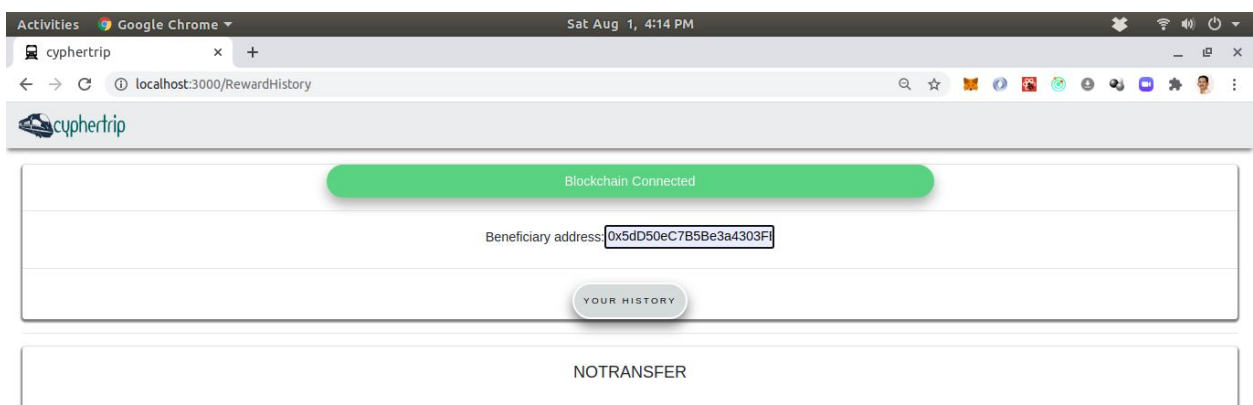
Blockchain Connected

Beneficiary address:

YOUR HISTORY

NOTTRANSFER

17. Click on view token reward history



Activities Google Chrome Sat Aug 1, 4:14 PM

cyphertrip

localhost:3000/RewardHistory

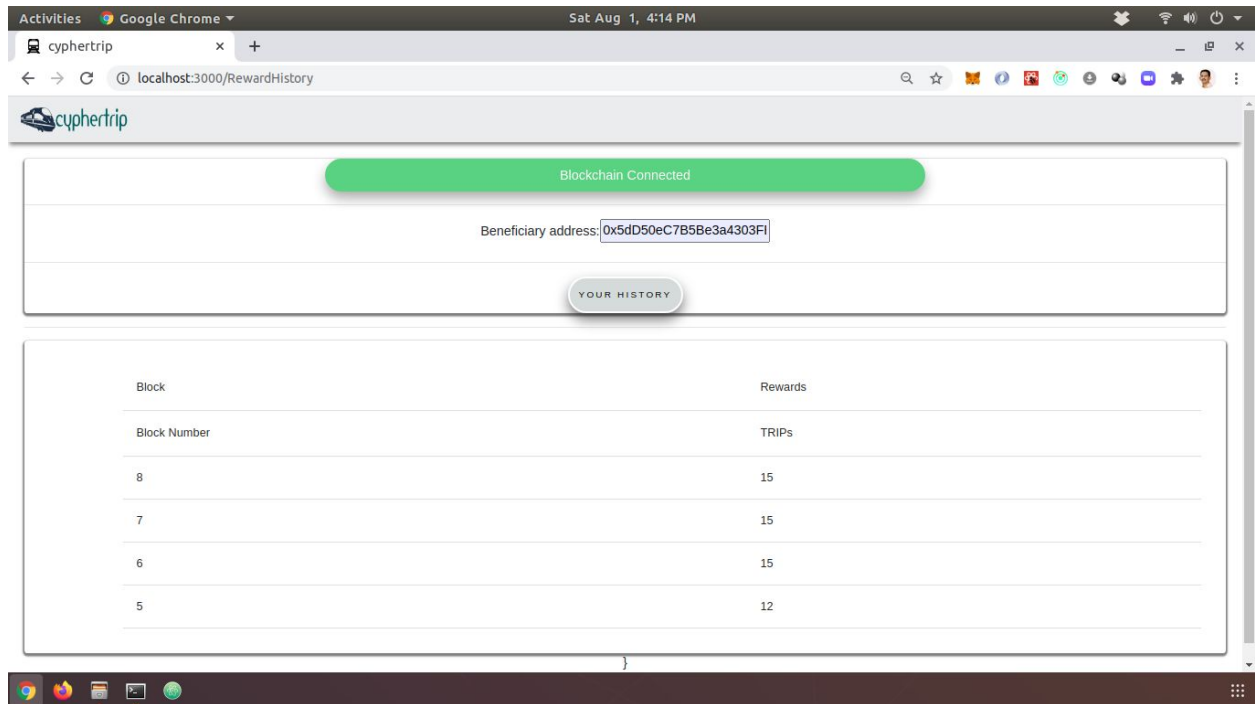
cyphertrip

Blockchain Connected

Beneficiary address:

YOUR HISTORY

NOTTRANSFER



Smart contract

2 smart contracts were used

TripToken	Erc 20 token. Inherits all methods such as transfer, balanceOf from the parent erc20.sol.
TokenReward	For fixing the beneficiary