

DEPLOY & RUN TRANSACTIONS

VEHICLEDATAMANAGEMENT AT 0XD91...39138 (MEMORY)

addCar

string vin, string brand\_name, string model\_name, string purc

addMechanic

address add

addUser

address add

GrantViewPermission

string id, address add

RevokeViewPermission

string id, uint256 index

transferOwnership

string vin, address owner, string new\_owner\_name

updateMaintenanceRep...

string vin, string vehicleCondition, uint256 currentOdometer,

viewAllowed

string id

viewCar

string vin

viewMaintenanceReport

string vin

VehicleDataManagement.sol

```

1
2 pragma solidity ^0.4.15;
3 contract VehicleDataManagement {
4
5     event Creation(
6         address indexed from,
7         string indexed vin
8     );
9
10    event Transfer(
11        address indexed from,
12        address indexed to,
13        string indexed vin
14    );
15

```

listen on network

Search with transaction hash or address

creation of VehicleDataManagement pending...

[vm] from: 0x583...eddC4 to: VehicleDataManagement.(constructor) value: 0 wei data: 0x608...70029 logs: 0 hash: 0xb87...8e302

Debug

DEPLOY & RUN TRANSACTIONS

ENVIRONMENT

JavaScript VM (London)

ACCOUNT

0x5B3...eddC4 (99.999999999)

GAS LIMIT

3000000

VALUE

0 Wei

CONTRACT

VehicleDataManagement - VehicleData

Deploy

Publish to IPFS

OR

At Address

Load contract from Address

VehicleDataManagement.sol

```

1
2 pragma solidity ^0.4.15;
3 contract VehicleDataManagement {
4
5     event Creation(
6         address indexed from,
7         string indexed vin
8     );
9
10    event Transfer(
11        address indexed from,
12        address indexed to,
13        string indexed vin
14    );
15

```

listen on network

Search with transaction hash or address

creation of VehicleDataManagement pending...

[vm] from: 0x5B3...eddC4 to: VehicleDataManagement.(constructor) value: 0 wei data: 0x608...70029 logs: 0 hash: 0xb87...8e302

Debug

Also following is snapshot of a transaction receipt we get on adding a Car

[vm] from: 0xAbs...35cb2 to: VehicleDataManagement.addCar(string,string,string,string,string,string,bool) 0xd91...39138 value: 0 wei data: 0x3f9...0000 logs: 1 hash: 0xe37...c41d8

status

true Transaction mined and execution succeed

transaction hash

0xe37022fe30b466105ec713e20000b2f6dc30f7ebcc2fe91b99820c810c4100

from

0xA08483764d9C6d18cF90849Ae6770D3315635cb2

to

VehicleDataManagement.addCar(string,string,string,string,string,string,bool) 0xd9145CC652D386f254917e481e84e99a3f39138

gas

00000000 gas

transaction cost

303174 gas

execution cost

303174 gas

hash

0xe37022fe30b466105ec713e20000b2f6dc30f7ebcc2fe91b99820c810c4100

input

0x3f9...00000

decoded input

```
{
  "string vin": "101",
  "string brand_name": "Mahindra",
  "string model_name": "Thar 5-door",
  "string purchase_date": "11-01-2022",
  "string owner_name": "Pratyush",
  "bool isfirsthandowner": true
}
```

decoded output

()

logs

```
[
  {
    "from": "0xd9145CC652D386f254917e481e84e99a3f39138",
    "topic": "0x7b7af6ecb3780070e33f520b6f47244362300b0531b640eecd09df393367d",
    "event": "Creation",
    "args": [

```

Brief definition of terms given in the picture:

Status: Ethereum provides with a way to know if a transaction succeeded by checking its receipt status. A receipt status can have a value of 0 or 1 which translate into: 0 transaction has failed (for whatever reason) 1 transaction was successful.

Transaction hash: A transaction hash/id is a unique string of characters that is given to every transaction that is verified and added to the blockchain. In many cases, a transaction hash is needed in order to locate funds.

from: address of the sender.

to: address of the receiver. null when it's a contract creation transaction.

Gas: The amount of gas used by this specific transaction alone.

Transaction cost: the sum of the transaction cost plus the execution cost.

decoded input: this is the decoded input parameters

decoded output: decoded output parameters

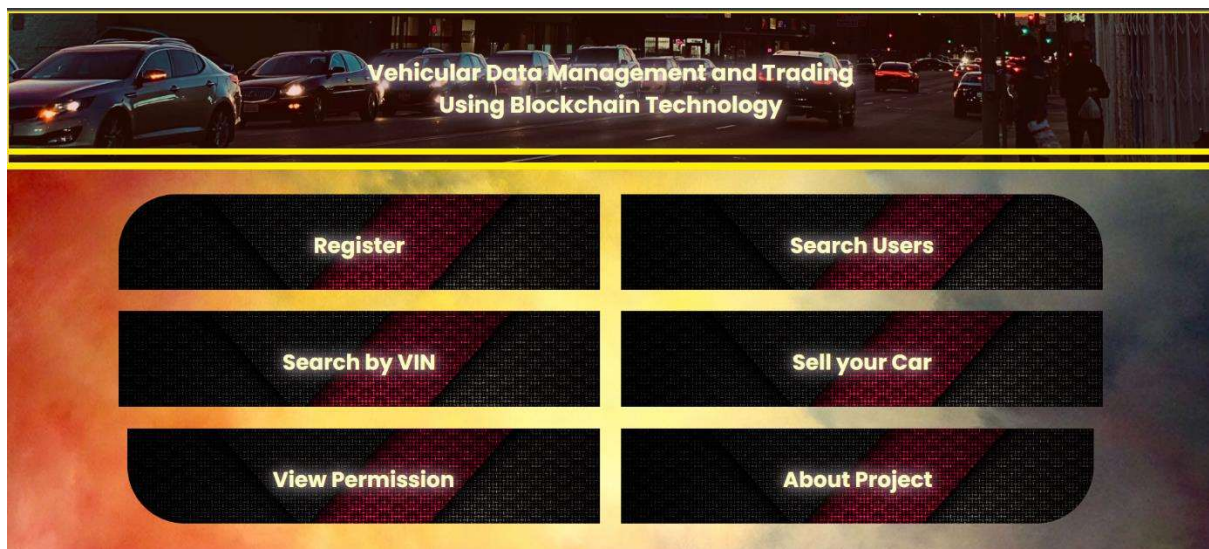
logs: The logs are generated when there is an event in the smart contract. So if there is no event, then there are no logs generated.

value: the amount of wei sent with this transaction.

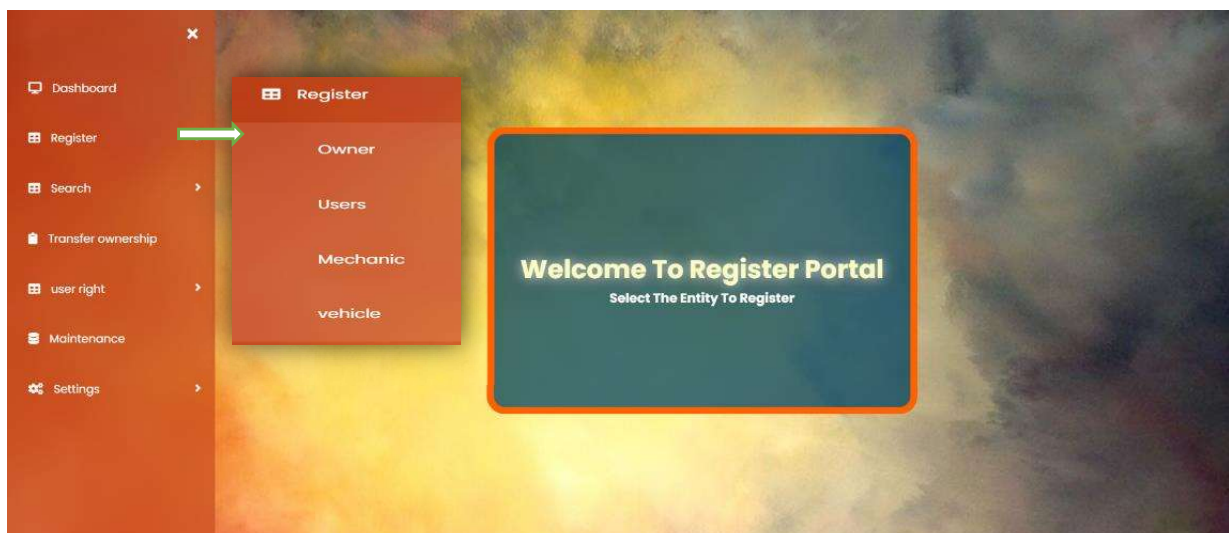
Presently We have integrated Our smart Contract to a web UI Using truffle-suite, metamask and web3.js through vs code.

Following are the Snapshots of our System

### 9.1)Home Page



### 9.2)Register Section



### 9.2.1) Adding User address into system by owner

Welcome To owner Portal

Account Register

0x8cB30f84f3557B851c3e7e4146508c7ed99B4d2D

Add as User

Add as Mechanic

Account 2 → 0x2Fc...11F1

New address detected! Click here to add to your address book.

http://127.0.0.1:5500

0x2Fc...11F1 : CONTRACT INTERACTION ⓘ

DETAILS DATA HEX

EDIT

Estimated gas fee 0.0094 0.0094 ETH

Site suggested Max fee: 0.0094 ETH

Total 0.0094 0.0094 ETH

Amount + gas fee Max amount: 0.0094 ETH

### 9.2.2) Adding Mechanic address into system by owner

Welcome To owner Portal

Account Register

0x40e7b880C17Bc4491F5c244e7580a3A0d80e474B

Add as User

Add as Mechanic

MetaMask Notification

Localhost 8545

Account 2 → 0x2Fc...11F1

New address detected! Click here to add to your address book.

http://127.0.0.1:5500

0x2Fc...11F1 : CONTRACT INTERACTION ⓘ

DETAILS DATA HEX

EDIT

Estimated gas fee 0.0094 0.0094 ETH

Site suggested Max fee: 0.0094 ETH

Total 0.0094 0.0094 ETH

Amount + gas fee Max amount: 0.0094 ETH



### 9.2.3) Adding user data into the System by user

127.0.0.1:5500 says  
user added successfully

OK

Welcome To User Enrollment Portal

**User Register**

0x8cb30E64F3557BB51c3e7E4146508c7Ed99B4d2D

Pratyush

Male

Patna

9876543210

\*\*\*\*\*

Create Profile

Account 3 → 0x2Fc...11F1

New address detected! Click here to add to your address book.

http://127.0.0.1:5500

0x2Fc...11F1 : CONTRACT INTERACTION ⓘ

DETAILS DATA HEX

EDIT

**Estimated gas fee** ⓘ 0.0094 **0.0094 ETH**

Site suggested **Max fee:** 0.0094 ETH

---

**Total** 0.0094 **0.0094 ETH**

Amount + gas fee **Max amount:** 0.0094 ETH

### 9.2.4) Adding Mechanic data into the System by Mechanic

127.0.0.1:5500 says  
mechanic added successfully

OK

Welcome To Mechanic Enrollment Portal

**Mechanic Register**

0x40e7b880C17Bc4491F5c244e7580a3A0d80e474B

Ritesh

Male

9876435210

XYZ Garage

Patna , Bihar

Create Profile

Account 4 → 0x2Fc...11F1

New address detected! Click here to add to your address book.

http://127.0.0.1:5500

0x2Fc...11F1 : CONTRACT INTERACTION ⓘ

DETAILS DATA HEX

EDIT

**Estimated gas fee** ⓘ 0.0094 **0.0094 ETH**

Site suggested **Max fee:** 0.0094 ETH

---

**Total** 0.0094 **0.0094 ETH**

Amount + gas fee **Max amount:** 0.0094 ETH

### 9.2.5) Adding Car into the System by User added earlier

Account 3

0x2Fc...11f1

New address detected! Click here to add to your address book.

DETAILS

DATA

HEX

EDIT

Estimated gas fee0.00940.0094 ETH

Site suggestedMax fee: 0.0094 ETH

Total0.00940.0094 ETH

Amount + gas feeMax amount: 0.0094 ETH

Reject

Confirm

Vehicle Register

0x8cb30e64f3557bb51c3e7e414650bc7ed99b4d2d

101

09-01-2020

Mahindra

Thar

Pratyush

true

Register Vehicle

register vehicle page

0x8cb30e64f3557bb51c3e7e414650bc7ed99b4d2d 101 Mahindra Thar 2020-01-09 Pratyush True

register.html:230

register.html:358

register.html:364

▼ Object

blockHash: "0xd60a60fb62341584950a616ad4c65439b895b66e0f29886e33f0a8497ad36ad5"

blockNumber: 90

contractAddress: null

cumulativeGasUsed: 335311

events: {Creation: {...}}

from: "0x8cb30e64f3557bb51c3e7e414650bc7ed99b4d2d"

gasUsed: 335311

logsBloom: "0x0000000000000000080000000000100000000000000000000000000000000000"

status: true

to: "0x2fcf032e14f0d46831514583816f9c1edba011f1"

transactionHash: "0x241a5a9eefe04e2dafcbf474e0fd50610925308831ebb0938de92e87fc"

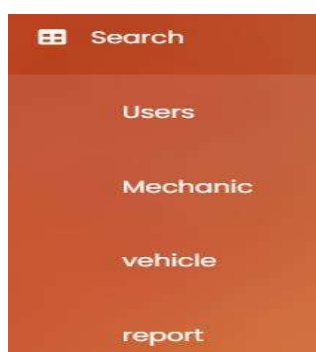
transactionIndex: 0

[[Prototype]]: Object

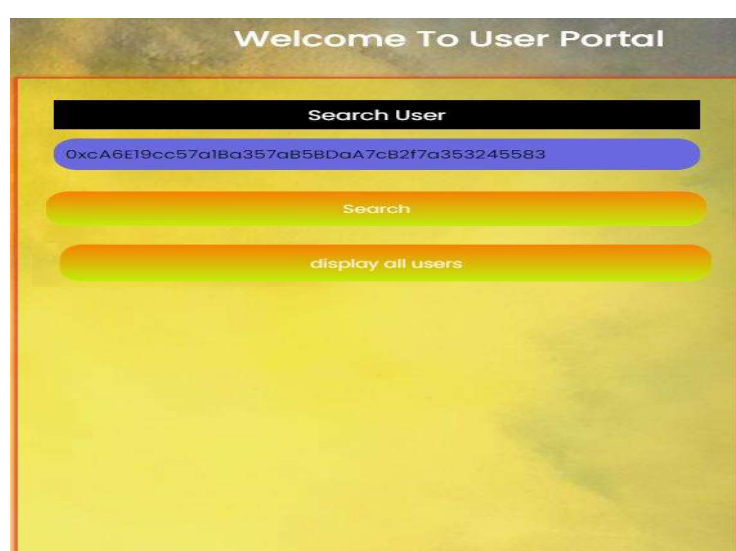
vehicle added successfully

register.html:365

### 9.3)Search icons



#### 9.3.1)Search User



**Personal Detail**

Name	Ritesh Raman
Gender	Male
Address	Siwan
Phone	976855432

### 9.3.2)Search Mechanic

Welcome To Mechanic Portal

**Search Mechanic**

0x40e7b880C178c4491F5c244e7580a3A0d80e474B

Search

display all mechanics

**Personal Detail**

Name	Ritesh
Gender	Male
Gaarage	XYZ Garage
Address	Patna , Bihar
Phone	9876435210

### 9.3.3)Search Car

Welcome To Car Portal

**Search Car**

101

Search

Display all cars

**Personal Detail**

owner name	Pratyush
owner	0x8cB30E64F3557BB51c3e7E414650Bc7Ed99B4d2D
address	
Brand name	Mahindra
Model name	Thar
Purcahse	2020-01-09
date	
is First hand	True
owner	

#### 9.3.3.1)Display All cars

VIN	Account	Brand	Model	Purchase Date	Owner name
103	0x4B487264F4DCbE768Ef180978123Ec15e4D69801	Kia	EV6	2019-02-07	Shubhang Sharma
102	0xcA6E19cc57a1Ba357aB5BDaA7cB2f7a353245583	Mahindra	XUV700	2022-06-01	Ritesh
101	0x8cB30E64F3557BB51c3e7E414650Bc7Ed99B4d2D	Mahindra	Thar	2020-01-09	Pratyush



### 9.3.4) Search Report

Welcome To Maintenance Portal

Search Report

101

Search

**Personal Detail**

vin  
vehicle condition **Good**  
odometer reading **3421**  
engine hour **123**  
reading last **2022-06-01**  
service type **Engine Checked, Tires Checked**  
parts replaced **No**  
cost **3000**  
is under insurance? **Yes**  
message

### 9.4.1) Transfer Ownership

Ownership Tranfer Successfull

OK

Seller

0x4B487264F4DCbE768Ef180978123Ec15e4D69E

103

.....

Fetch Details

Buyer

0x5032Da790398ACAd422dcb23CBcee59774d

.....

Fetch Details

**Owner Detail**

Owner **Shubhang**  
Name **Sharma**  
Phone No **976855477**

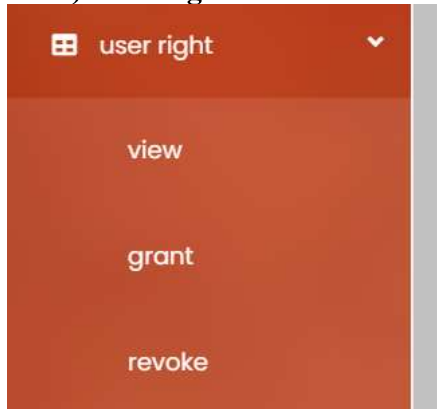
**Transfer**

**Buyer Detail**

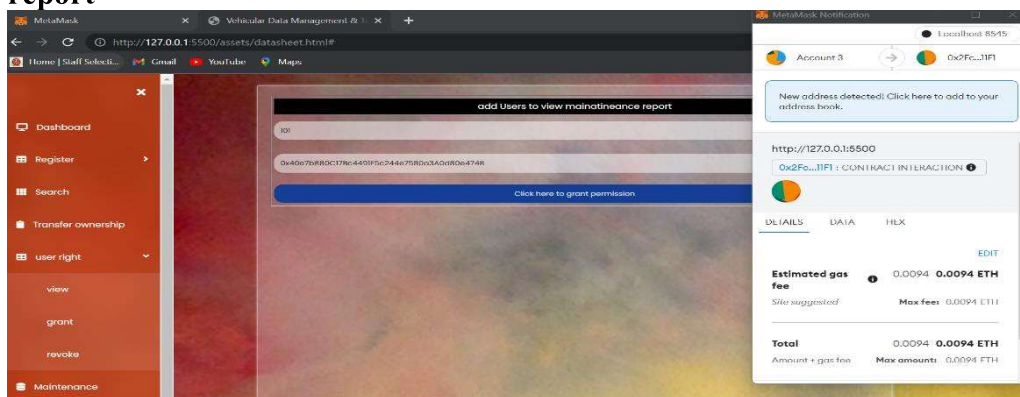
Name **Vivek Verma**  
Gender **Male**  
Address **Patna**  
Phone **76890543211**

VIN	Account	Brand	Model	Purchase Date	Owner name
103	0x5032Da790398ACAd422dcb23CBcee59774d76780	Kia	EV6	2019-02-07	Vivek Verma
102	0xcA6E19cc57a1Ba357aB5BDaA7cB2f7a353245583	Mahindra	XUV700	2022-06-01	Ritesh
101	0x8cB30E64F3557BB51c3e7E414650Bc7Ed99B4d2D	Mahindra	Thar	2020-01-09	Pratyush

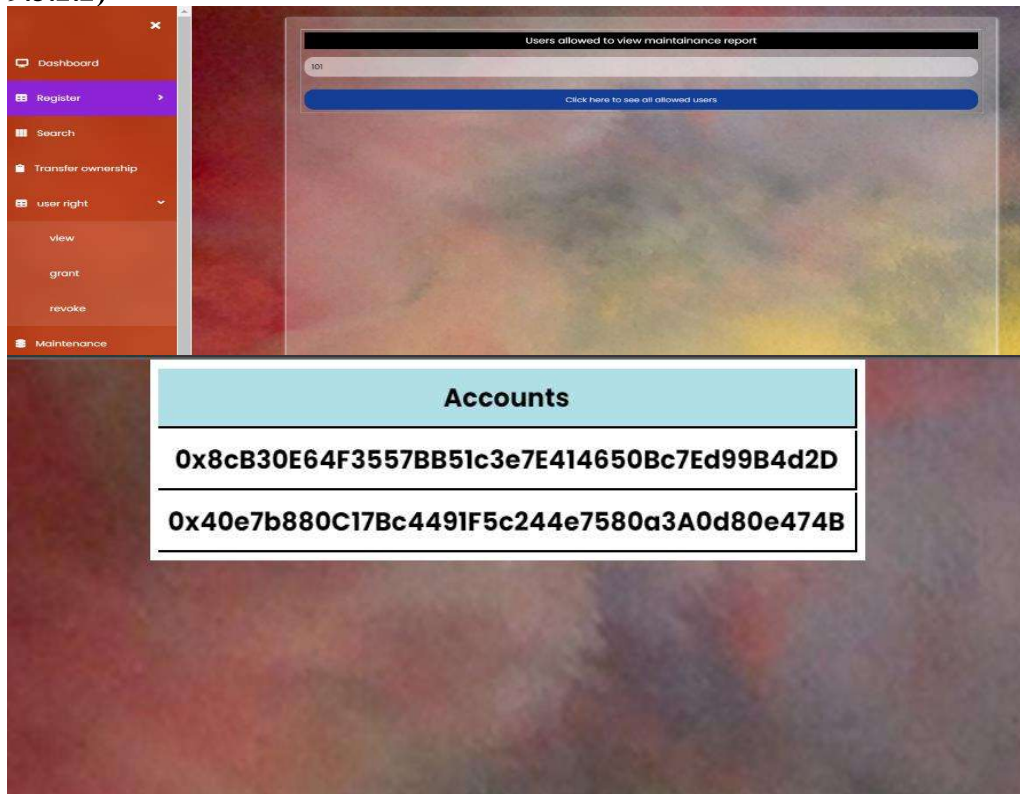
### 9.5.1) User Rights icon



### 9.5.2.1) grant -> after mechanic is granted the permission he is able to update report

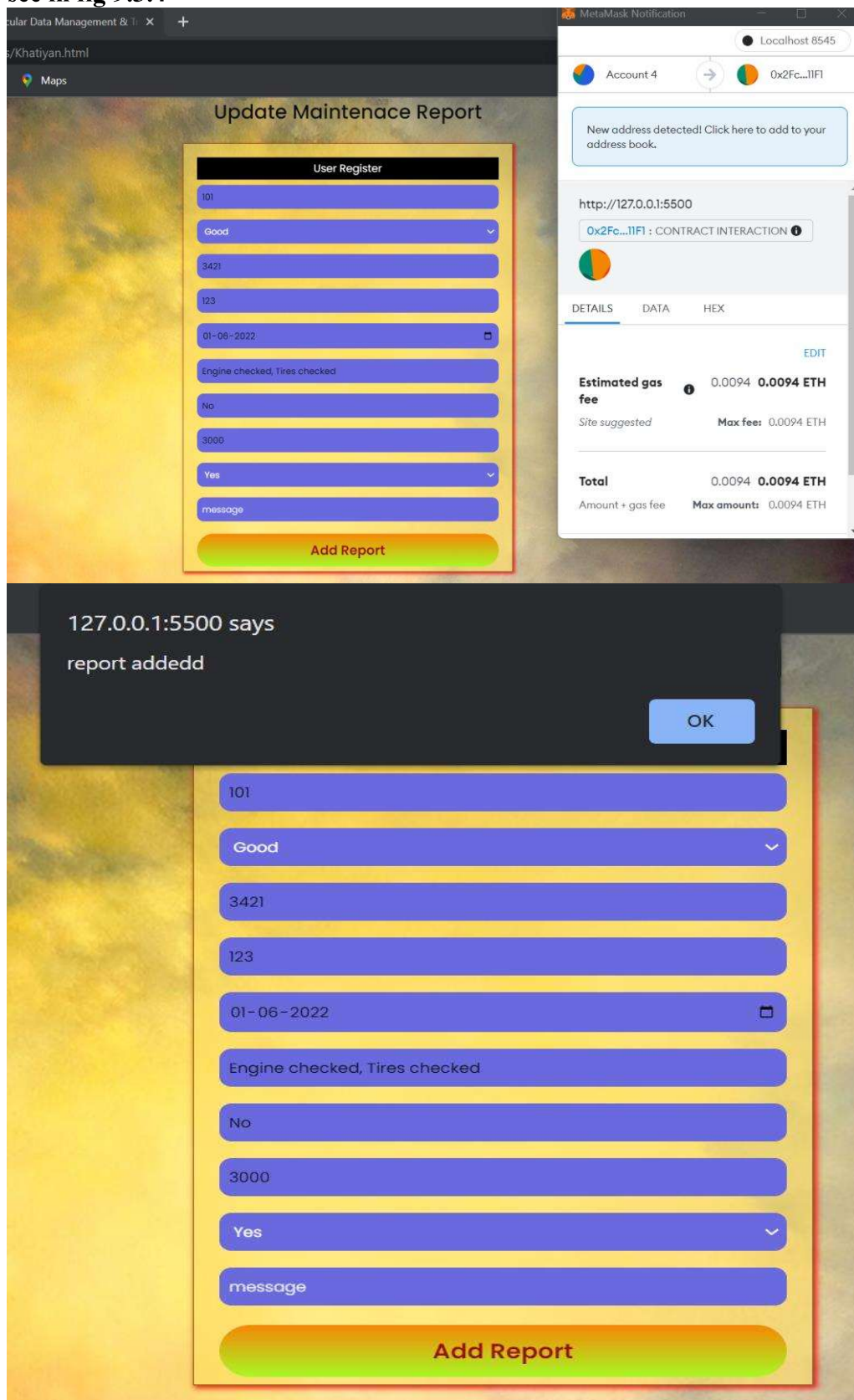


### 9.5.2.2)

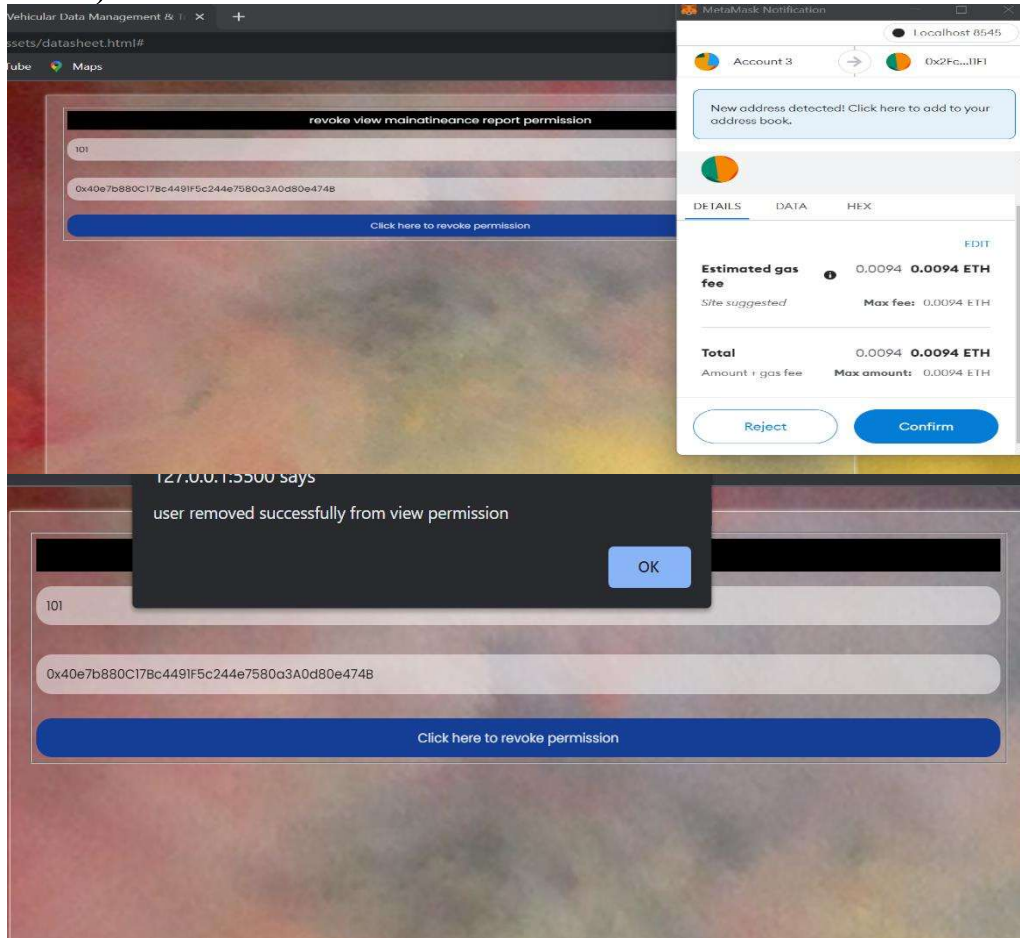




9.6.1)After mechanic is granted permission he can update report which we can see in fig 9.3.4



### 9.5.2.3) Revoke access from mechanic



## 10.Future Plan

We have Currently Thought to use React Framework in our system in future for more better UI experience.

## 11.References

- 1) [https://www.researchgate.net/publication/318131748\\_An\\_Overview\\_of\\_Blockchain\\_Technology\\_Architecture\\_Consensus\\_and\\_Future\\_Trends](https://www.researchgate.net/publication/318131748_An_Overview_of_Blockchain_Technology_Architecture_Consensus_and_Future_Trends)
- 2) <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7308938/>
- 3) <https://arxiv.org/ftp/arxiv/papers/1708/1708.09721.pdf>
- 4) [https://www.epfl.ch/labs/dedis/wp-content/uploads/2020/01/report-2018\\_2-iva-najdenova-car.pdf](https://www.epfl.ch/labs/dedis/wp-content/uploads/2020/01/report-2018_2-iva-najdenova-car.pdf)
- 5) <https://ethereum.org/en/developers/docs/>
- 6) <https://remix-ide.readthedocs.io/en/latest/>
- 7) <https://ethereum.org/en/developers/docs/web2-vs-web3/>