**1.GİRİŞ SLAYTI**

My friend Cihan told you about the subject, purpose and content of the project.

I would like to talk about our application, which we call BlockChecker, in general, and then I will explain the content of our project.

Blockchain technology is the best solution to distinguish fake products from original ones. The most basic purpose of our project is to enable people to determine whether the product is a fake or an original product.

The general operation of our application is as follows;

In the picture you see on the left, we have a representative of the manufacturer that we want to check whether their products are original. After receiving the order, our manufacturing company produces an encrypted QR Code with our web application in order to distinguish the products it produces from fakes, and this QR code is specific to each product. In this way, the products are recorded through our application. All product details, block name, a hash value are kept in the cloud database. In this way, the product becomes available for sellers. Get a phone as a product representation.

On the right, you see an image representing the vendors. Sellers, on the other hand, have to check this product, which the manufacturers offer to the sellers, in order not to sell counterfeit products to their customers before purchasing them. For this reason, product-specific keys encrypted with QR code are used to decrypt with QR code again with our application. Of course, we provide this again by using the image processing technology from the camera through our web application.

If the product is the product produced by our manufacturer company, that is, if it is original, we see a message that the product is acceptable. If the product is not the product produced by the manufacturer, that is, if the id between the encrypted data and the decrypted data does not match, we unfortunately say that the product is a fake product.

Then let's see the use of our application step by step and let's see how our product reaches the seller from our manufacturer company;

**2.SLAYT**

Welcome to Blockcheck. Our aim; It is to protect the originality of electronic devices, clothing, books and more thanks to the Blockchain infrastructure.

We start by adding our manufacturer company to the system;

**3.slayt**

We select the manufacturer section in the upper right menu of our web application. Then, on the page that opens, we are greeted by the actions that our manufacturing company can do.

A new manufacturer can be registered in the manufacturer companies section.

We can enter the information of the products produced by our manufacturer company and then create a QR code and save it.

Our last feature is;

Our manufacturer company can list the details of the registered products.

4.slayt

First of all, let's register our manufacturer company to be our manufacturer company.

We choose from the relevant menu;

5. slayt

On the screen that comes up, we are expected to write the commercial name of our manufacturing company, corporate e-mail address and corporate phone number. In our example, since we will use an Apple iPhone 13 phone, we register the Apple brand as the manufacturer.

6. slayt

Then we press the Submit button and we perform the registration process, but of course, we activate our Blockchain construction.

7.slayt

Our user who wants to do this transaction must approve the metamask account in order to complete the transaction with the blockchain infrastructure. Before giving consent, let's examine which transaction it approves. If we remember the data we wanted to save in the form, it was the manufacturer's name, e-mail address and phone number. As you can see, our data is regularly matched to the parameters and values are assigned to the corresponding parameter ids. Since the values are encrypted, we cannot see them directly in the array.

8.slayt

Let's go back to confirm the details part. You can see our application name at the top of the Metamask screen.

So 'Block Checker'

Our website address is here

Of course, there is a certain gas fee for this transaction, as in every transaction.

After looking at all these and making sure, we approve.

On the next slide you will see that the post was successful.

Let's see;

9.slayt

Yes, as you can see, the transaction was successful. We have added the basic information of our manufacturer company with Blockchain to the database of our web application.

Slide 10 – Product Registration section

Now, let's create our QR Code, which contains the product information of a product produced by our manufacturer company, and the password we will generate with the Blockchain structure that we will derive, and save all these in an encrypted way to our database.

I go back to the Manufacturer section and select the Product registration section from our Functions list

11.slayt

As we see on the screen, we enter our product information.

We indicate the product code of the product, the brand of the product, the name of the product, a brief description of the product, the name of the manufacturer of the product, the location of the manufacturer of the product and the date of manufacture of the product.

12.slayt

Then, we send our product to be registered as belonging to the relevant manufacturer company, and we produce the QR code at the same time.

13.slayt

First, let's examine the parameters of our product that we have registered over metamask, and then look at the QR code. As you can see, the form data we have entered has been sent in a separated form. Besides, we will see in our next slide;

14.slayt

Our product's qr code has been created as you can see in the picture. Now let's scan our qr code from our smartphone and see if our product is in the manufacturer's database, that is, whether it is original or fake. Let's move on to our next slide;

15. slayt

When we scan the QR Code with a qr code application, it says that it will go to a link like this.

So let's go to the link and see

16. slayt

When you go to the link, you see the picture of the screen that appears before us. On this screen, information about the relevant product is displayed, that is, our product is original. While making the query, the block hash code saved in the database and the qr code and the block hash codes sent in the background in the query are solved with certain algorithms and matched with certain methods.

17.slayt

But what if the product was a fake product?

Let's scan a fake QR code and see the situation;

18.slayt

As you can see, when we went to the link in the qr code, Blockcheck told us that the product was fake because the block in the control system and the hash code attached to it did not match.

19.slayt

What if the product was tried to be manipulated with a random product code?

Now let's try to go to a product that does not exist by entering the product id number as 99 from the url address.

As you can see, when I want to try the product code with a different number, you will see that the product is not available. Because even if the product code I entered coincides with a product in the system, since there is no hash code sent with the qr code, my system will not be able to find an incoming block hash code, since I make a request to the server by editing the url address, and therefore, matching will not be possible.

Our manufacturer company can test its own product in this way. In the following slides, we will see a similar process on the seller side. The main thing is that this is provided by the seller.

20.slayt

We figured out whether our iPhone 13 product is original or fake. Then let's want to send our product to our vendor company. For this, let's create a vendor company first.

Let's select the seller registration option.

21.slayt

Let our seller have the name of Taksim Square Telephone in Istanbul Taksim. Let the e-mail address and phone number also have the information you see in the picture.

22.slayt

Let's hit the submit button and then watch what happens.

23.slayt

A notification is sent to our Metamask account and the procedure for sending this registration to a database for us to do with Blockchain begins.

As you can see here, our parameters are shown with the properties of the data we have sent.

24.slayt

After checking this, we come to the properties tab and press the relevant button to confirm.

25.slayt

After waiting for a while, the send to database operation is approved.

26.slayt

Let the manufacturer want to send the Iphone 13 product produced by our company to our sales company. To do this, we go to the manufacturer section again and then select the product transfer option.

27.slayt

We write the product identification number of the product that our manufacturer wants to send, that is, 1597654, which is the identification number of the iPhone 13. Then we enter the e-mail address of the seller we want to send the product to. In this way, we have filled in the necessary information for the transfer.

28.slayt

We hit the submit button and see what happens.

29. slayt

Yes, as you can see, our metamask wallet takes action again and divides the data we want to send into our parameters.

30.slayt

Let's go to the details section to confirm; You see the required gas fees total. A gas fee is required for each transaction. Let's confirm.

31.slayt

As you can see, the product that the manufacturer wanted to send to the seller has been sent.

After that, the process continues as follows. Our seller wants to know whether the product sent is correct even if it is sent by the system. Our seller will not want to supply a counterfeit product.

Since our manufacturer company sends the product to our vendor company, this query can be made in the vendor database.

So How? Of course, this is possible with a QR code.

Let's see in our next slide;

32.slayt

When you scan the QR code on the product on the left, you will see that it goes to the url address on the right. Let's go to the address.

33.slayt

Our seller tested whether the iphone 13 product with the product code 1597654, which was sent by our manufacturer, is original, and as a result, he saw that it was an original product and decided to supply the product.

34.slayt

But what if the product had been fake? Let's see this by getting a qr code to be included in our blockchain.

35.slayt

As you can see, when we go to the link in the qr code we have read, you will see that the relevant product is fake on the screen that comes up. In other words, our supplier company, that is, our manufacturer company, sent a fake product to our seller. Therefore, they will not want to supply this product.

36. slayt

But how will the customer who will buy the product from the seller understand whether the product is real or not? So how will someone who wants to buy an iphone 13 from a Taksim square seller know if it's a real iphone?

Of course, this is possible with a QR code.

This time, since the product is on the seller's side, we allow the customer to read the qr code of the product on the seller's side, from the customer's smartphone. Thus, the customer can instantly learn whether the product is fake or original.

37. slayt

The screen that will appear when our customer reads the QR code of the product from his smartphone and goes to the link is as follows. As can be seen, as a result of the query made by the seller on the blockchain with the manufacturer, the product has been verified to be original.

38.slayt

Now, in order to show it again, let's fake the iphone 13 product in the seller and let our customer read the qr code related to it.

39. slayt

In the Qr code read, we see that the product was found to be fake as a result of the query in the blockchain with the seller's manufacturer. Therefore, the customer will not want to buy the product from the seller.

40.slayt

I tried to explain the use of our project step by step.

In this way, by using the Blockchain structure, we can easily understand whether the customer is original or fake when buying a product from the seller, in a very secure way, within the manufacturer itself and in the exchange between the manufacturer and the seller, and under the control of the seller within himself.

Thus, our project reaches its goal.

Thank you for listening to me. Stay well.