

DISTRIBUTED MARKETPLACE WITH ESCROW

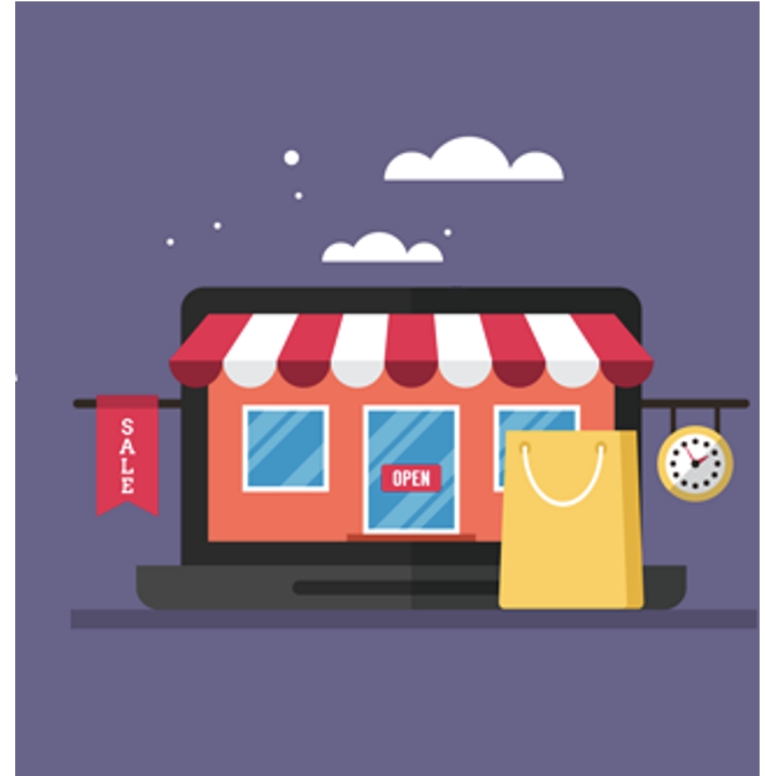
BERKE ATAC

OGUZ OZSAYGIN



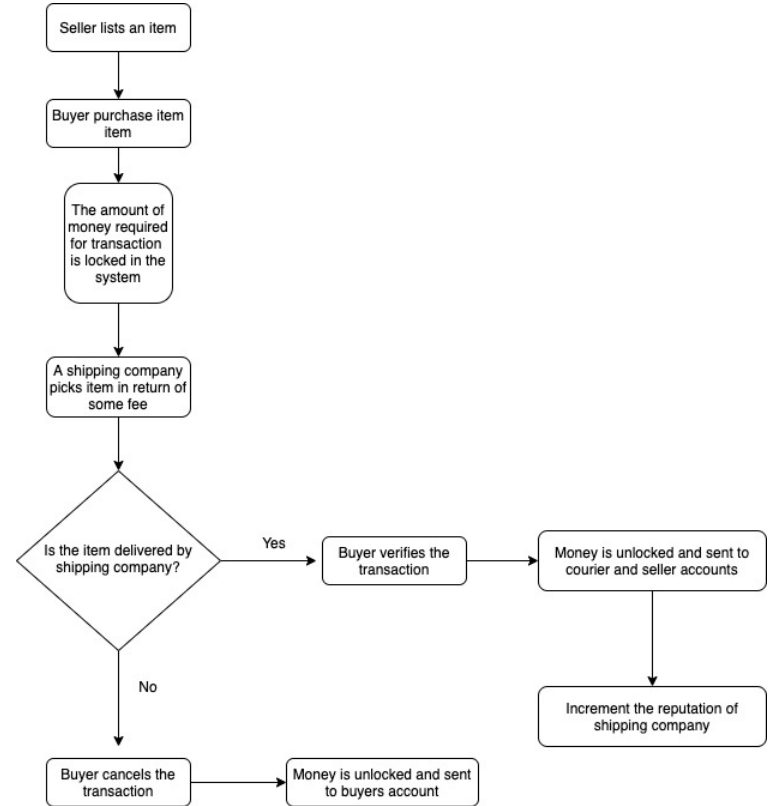
INTRODUCTION

- A marketplace is a platform where parties can sell and buy their products with respect to their interests.
- Three main roles exist in marketplace trade transactions which are seller, buyer and shipping party.



INTRODUCTION

- The seller post an item in the listing and any buyer can purchase it.
- Once buyer purchase the item money is sent from its account to the system and locked in it.
- A shipping company (a courier) may offer delivery services to ship the item to buyer in return of some fee (in percentage).
- If buyer gets the product, it verifies the transaction and money unlocked is sent to seller and shipping company.
- Moreover, shipping company increase their reputation for each successful delivery.
- Otherwise, buyers cancel the transaction and money unlocked returns to buyer again.



MOTIVATION

- All money is held on the website's bank account. This causes a security flow in operations because all money transfer operations may fail with a single point failure.
- The owner of the website may deceive parties and go missing with the money on the hold.



MOTIVATION

- Parties taking place in trades do not trust each other and need a trusted third party to securely perform the money transfer operation.
- Websites get overcharged commissions in each purchase operation.
- We believe that the cost of money storing operations can be more much less than current commission rates offered by e-commerce companies.

GeT Hizmet Bedeli Nedir?

Güvenli e-Ticaret Hizmet Bedeli*, satış işleminin başarı ile gerçekleşmesi durumunda (alıcının kargo ile gönderdiğiniz ürünü onayladığı), ürün satış fiyatınız üzerinden kesilen tutardır. Bu tutara KDV ve banka kesintileri dahildir ve ürününüzün tek çekim ya da kaç taksitle satıldığına göre değişmez.

Güvenli e-Ticaret Hizmet Bedeli, sahibinden.com üyelik tipinize ve ürününüzün satışa sunulacağı kategoriye göre değişiklik göstermektedir.

Hizmet Bedeli oranlarımızı aşağıdaki tabloda inceleyebilirsiniz.

Kategori		Bireysel	Kurumsal**
İkinci El ve Sıfır Alışveriş	Bilgisayar	9%	7%
İkinci El ve Sıfır Alışveriş	Cep Telefonu	9%	7%
İkinci El ve Sıfır Alışveriş	Fotoğraf & Kamera	9%	7%
İkinci El ve Sıfır Alışveriş	Ev Dekorasyon	12%	10%
İkinci El ve Sıfır Alışveriş	Ev Elektronik	9%	7%
İkinci El ve Sıfır Alışveriş	Elektrikli Ev Aletleri	9%	7%
İkinci El ve Sıfır Alışveriş	Giyim & Aksesuar	12%	10%

IMPLEMENTATION

- Build with Web3JS, TruffleJS, ReactJS
 - Items are stored in blockchain for immutability of data.
 - No extra database used
 - Smart contract provides an API for marketplace functionality (create, purchase, verify methods)
 - Tested in Ropsten testnet
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FORMAL SECURITY ANALYSIS

SAVE

CONSULT

Files

contracts/Migrations.sol

contracts/Marketplace.sol

contracts/Marketplace.sol

```
1 pragma solidity ^0.5.0;
2 pragma experimental ABIEncoderV2;
3
4
5 contract Marketplace {
6     string public name;
7     uint256 public itemCount = 0;
8     uint256 public courierCount = 0;
9
10    mapping(uint256 => Item) public items;
11    mapping(uint256 => Courier) public couriers;
12
13    /*
14     * Models
15     */
16    struct Courier {
17        uint256 id;
18        address payable adr;
19        uint256 reputation;
20    }
21
22    struct Item {
23        uint256 id;
24        string name;
25        string description;
26        uint256 price;
27        uint256 fee;
28        address payable owner;
29        address payable buyer;
30        address payable courier;
31        bool purchased;
32        bool verified;
33        bool transit;
34    }
35    /*
36     * Events
37     */
```

Errors

Lines

Extra gas consumption



Compiler version not fixed



Non-strict comparison with zero



Prefer external to public visibility level

