

Skraps: Invest your spare change in crypto assets

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Team Skraps

Abstract

Most people want to cultivate a habit of investing, but very few people actually get around to doing it. Investing in cryptocurrency is especially tricky given the volatile nature of the asset and tendency of investors to invest based on rumors. We believe the best way to get started with investing in crypto is by micro-investing. Our team has designed a platform which enables users to invest with each transaction they make in cryptocurrencies. Skraps is a micro-investing platform where users can invest in a portfolio of their choice based on their risk appetite. They can round off their transactions to desired decimal value and invest the spare change in cryptocurrency portfolios managed by professionals.

1. Introduction

Everyone knows that it's good to start investing. But very few people actually invest. The reasons include lack of knowledge about investing and the cognitive burden of making a set of decisions about how much to invest, where to invest and when to invest. According to this survey[\[1\]](#), 40% of millennials feel they don't have enough money to start investing in the stock market and they believe it takes a lot of money to get started. Many fintech companies have been trying to make investing simpler and demystify the process of investing. Robo-advisors like Wealthfront and Betterment enable users to start investing in just a few clicks. Taking this even a step further, spare change investing apps like Acorns and Stash even take away the burden of deciding to invest by investing the spare change amount from each transaction of their users.

With the recent growth in cryptocurrencies like Bitcoin and Ethereum, many people have taken to investing in cryptocurrencies. Some famous investors like Fred Wilson[\[2\]](#) and Chamath[\[3\]](#) have asserted that one should have at least 1% of their portfolio invested in cryptocurrencies.

This has led to the meteoric rise of Bitcoin and other crypto-tokens (**Fig. 1**) in recent months attracting more and more investors to this asset class.



Fig 1. Rise in market cap of BTC, ETH, etc. over this year (source: bitinfocharts.com)

But given the volatile nature of cryptocurrencies and tokens, taking a disciplined approach to investing is of utmost importance. Rather than investing in the upswing, which makes the purchase costlier, one should invest in a systematic manner at regular intervals. We believe that the best way to get started in cryptocurrency investing is to invest spare change from daily transactions to a portfolio of crypto-tokens based on one's risk appetite. Through Skraps, we envision to make crypto investing simple and fun by taking away the cognitive burden of investing. The spare change from each transaction in cryptocurrencies will be invested through our platform in the risk-adjusted portfolios of user's choice. These portfolios are managed by professional portfolio managers and which ensures best return on investment.

2. Motivation

Many people understand the general value of investing but very few understand the power of compounding. As mentioned above, millennials today think that they don't have enough money to invest in stock markets and they believe that it takes a lot of money to get started. They don't realise that the sooner they start investing, the higher chance they have of benefiting from the compound returns. As shown in **Fig.2** if a person starts investing today at a rate of \$20/week, in 5 years the investment will grow to \$5,746 and in 20 yrs, \$34,388 assuming a 5% average growth rate per year.



Fig 2. Power of Compounded growth in normal investment

Hence, making investing simple is very important to attract young people to start investing, even in small amounts. Enabling people to invest the spare change from their transaction is a great way to inculcate this habit. As the spare change is the round off amount from one's daily transactions like buying a coffee, the amount invested is hardly even noticed. The transactions happen on a regular basis, so the investments are made at a regular interval and the small spare changes add up to a significant amount.

This method of investing has already seen explosive growth from traditional micro-investing related applications such as Acorns. Acorns now boasts more than 2 million investment accounts with 600,000 opening in 2017 alone. They are on track to do 1 Billion trades this year as well. These results were impressive enough to attract over \$96 million in investments from some of the world's leading venture capital firms including Bain Capital Ventures, Paypal, Greycroft Growth Fund, etc.

We believe that as the blockchain industry expands and the number and value of crypto assets increase, the market for crypto-investing and speculation will also grow. Crypto markets, unlike traditional markets, are borderless, open 24/7, subject to minimal regulatory control and offer huge potentials for growth. Because of these characteristics, crypto markets represent an incredible opportunity for investors over traditional markets.

For investments in cryptocurrencies and tokens returns can be more than 15-20% per annum. As shown in **Fig.3** if a person starts investing today at a rate of \$20/week, in 5 years the investment will grow to \$7,085 and in 20 yrs, \$119,779 assuming a 15% average growth rate per year compounded monthly. Thus, crypto investments can result in much higher return on investment.

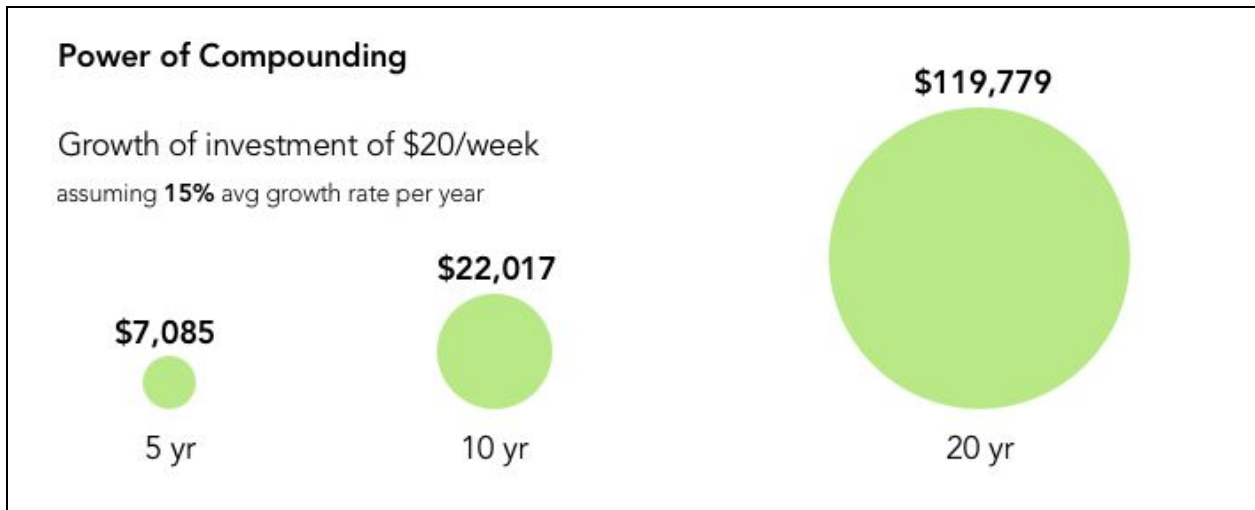


Fig 3. Crypto investment can grow at a much higher rate

There are over 500,000 unique cryptocurrency related transactions taking place every day. This number is only trending upwards as users, businesses, governments and others begin to accept cryptocurrencies in their daily lives.

Order	Ticker	Company Name	Market Cap in mn USD
1	AAPL	Apple Inc	\$852,250
27	PEP	PepsiCo, Inc	\$165,660
28	INTC	Intel Corp.	\$165,080
-	-	Cryptocurrencies	\$163,540
29	CSCO	Cisco System Inc	\$160,470
30	DIS	The Walt Disney Company	\$155,300
500	FTR	Frontier Communication Corporation	\$1,080

Table 1. Cryptocurrencies in the S&P 500

As shown in **Table 1** above, cryptocurrencies at the time of writing had a market cap of \$163 bn[4] USD which compares close to Top 28 in S&P 500. With Skraps we envisage to create a platform like Acorns, but for investing cryptocurrencies. Users can invest spare change from the transactions they make in cryptocurrencies and this spare amount automatically gets invested in portfolios of their choice.

Why “spare change investing” makes sense for cryptocurrencies?

1. Skraps platform will help people invest in cryptocurrency in an easy way, without feeling the cognitive burden to take out time to invest and choose the assets to invest in. We all know that even the best investors can't time the market perfectly. The best strategy is to build a diversified portfolio based on one's risk appetite and do systematic investments i.e. invest a specified amount of money in regular time intervals. This time averaging takes away the need to time the market perfectly.
2. Skraps is a unique way to encourage this systematic investment for crypto tokens. Especially since crypto tokens are very volatile, people tend to buy in upswings and sell in downswings. This is not a good strategy as people are just reacting to rumors in these cases. Skraps takes the cognitive burden away from investing and helps you save in your day to day transactions.
3. We believe that in coming times more and more transactions will happen in cryptocurrency and hence people can save a large sum of money by investing the spare amount from their transactions.

3. Skrap Design

Skraps essentially works like Acorns but for crypto-currency purchases. Users can invest their cryptocurrency or fiat spare change with Skraps platform to earn the rewards of consistent investing. For investing cryptocurrencies, a user will need to link his crypto-currency wallets to the Skraps platform. Whenever a user will make a purchase or do a transaction, a round off amount will be invested in the Skraps portfolio. The user can select the type of portfolio he wants to invest in based on his risk tolerance.

For example, suppose Alice is purchasing a flight ticket in Air Baltic using bitcoins. The price of the flight ticket is 12.98 BTC. She pays 12.98 BTC for the ticket. Then she goes to the Skraps app and rounds up the transaction to 13 BTC. So the .02 gets invested. The 0.02 BTC gets invested in a portfolio of her choice. Suppose Alice has selected to invest in Conservative portfolio. Then the 0.02 BTC will be invested in the Conservative portfolio in Skraps platform. Similarly, the spare changes after transactions in fiat currency will be invested in the selected cryptocurrency portfolio. The same scenario works for fiat. If Alice purchases a coffee for \$3.75, she can round up the transaction to \$4.00 and the difference (\$0.25) will get invested.

Thus, as users keep investing in the Skraps platform, their cryptocurrency investments will increase in value. The investment happens with each transaction, so there is no mental overload to decide where to invest and how much. Our commitment is to make investing very simple and intuitive so that everyone can benefit from the returns of disciplined investing.

Skraps platform will initially offer 5 different portfolios

- Conservative
- Moderately Conservative
- Moderate
- Moderately Aggressive
- Aggressive

All these portfolios are designed by experienced cryptocurrency managers who will invest in assets guided by the risk-return profile of the selected portfolio. These portfolios will be accessible by users for free. Users can view these portfolios and copy them for their use. **Fig 3.** shows a asset distribution in a sample cryptocurrency portfolio. In due course of time, we will introduce portfolios created by experienced users, which they can make public so that other users can also choose to invest in those portfolios. The portfolio creator will get a fixed fee on the amount invested by other users in the portfolio designed by him.

Skraps is primarily focussed on investing spare change from cryptocurrencies transactions to cryptocurrency portfolios - but to introduce more people to crypto portfolio investment, we will also provide fiat currency to crypto portfolio. So users can even chose to round up their transactions in fiat currencies and the spare amount from these transactions will be invested in crypto portfolios in Skraps platform.

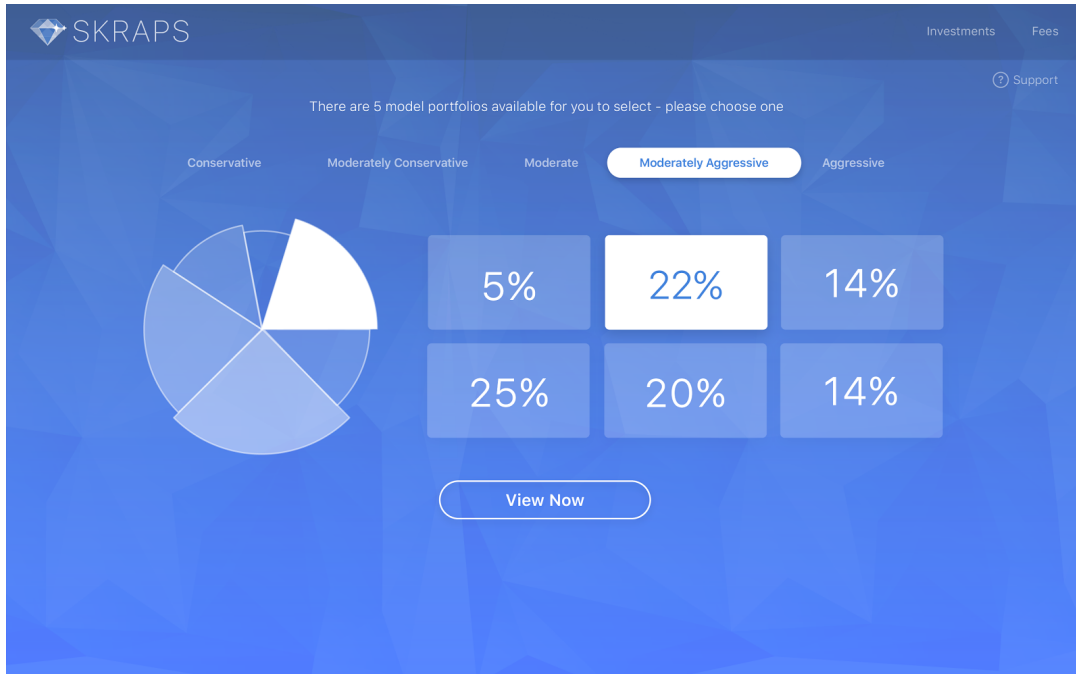


Fig 4. Sample asset distribution in a portfolio

4. Features

We have designed Skrap to be the platform which people turn to when they begin investing. Our focus is on keeping the user experience very simple and intuitive so that anyone can come on the platform and begin his investing journey. Since the investing happens with each transaction, there is a natural trigger to invest. The investment made is an amount which is “spare change” of the transaction, so the users don’t need to think twice before investing. It is as good as spare change which people forget about after keeping in their coat pocket.

Some of the key features of Skrap platform are:

1. Easy to invest

Anybody can begin investing in Skrap platform by following three simple steps.

- *Eqppgev'[qwt"Y cngv'/'* Users first need to connect their cryptocurrency wallets which they use to make purchases to the Skrap platform
- *Ocng"c"Rwt ej cug* - Users can then go on spending like normal. They can decide how much they want to round up to the nearest decimal point after they have made the

transaction. For example, if someone makes a purchase of 24.356 BTC, they can round up the purchase to 24.36 BTC, 24.4 BTC or 25 BTC.

- *Spending change* - The spare change is automatically invested in their chosen portfolio. Users don't need to do anything, but to watch their wealth grow.

2. Low cognitive load

Since all the investments are made from the spare change of a transaction, users don't need to consciously decide if they want to invest and how much they want to invest. All those decisions are taken care of. They just need to choose how much they want to round up to, and the spare amount is invested directly in a portfolio of their choice. Since the amount is very small, people don't think twice before investing and it becomes sort of a second habit to invest with each transaction.

3. Choose portfolio based on your risk appetite

In Skraps, users can choose to invest in a portfolio which suits their risk appetite. If the user is young and wants to take more risk, he can choose to invest in *High Risk* portfolio. This portfolio can generate a higher rate of return but is subjected to higher market risk. For a retired old man, a *Low Risk* portfolio would be more suited as they would not want to risk their savings. They would be ok with a lower rate of return, but one that is not subject to high risk.

Thus, different user segments can choose a portfolio based on their financial goals and life stage. All these portfolios are created by experienced cryptocurrency managers, so the users are assured of the best return for their chosen risk profile.

4. Create your own portfolio and share with the network

Initially, we will start with portfolios created by experienced cryptocurrency managers as detailed above. But in due course, we plan to introduce features for users to create their own portfolio and share with the Skraps user base. Any user on Skraps platform can choose to invest in a user-created portfolio and benefit from the expertise of other users.

There are a bunch of "experts" on Twitter with massive followings. We can encourage them to create portfolios on our platform so their followers can invest in. This would not only provide users a wider range of portfolios to choose from, but also provide the expert users a chance to try their hands at cryptocurrency portfolio management.

The users who create their own portfolio and open it for the public to invest will also get a small fee for their service. This fee will be based on the amount invested by other users in their portfolios. A sample illustration is shown in **Fig. 5**

5. Be in complete control of how much you invest

Most of the cryptocurrencies (like BTC, ETH, Litecoin) allow transactions in fractional amount. Each bitcoin (BTC) is divisible to the 8th decimal place, so each BTC can be split into 100,000,000 units. Each unit of bitcoin, or 0.00000001 bitcoin, is called a satoshi. A Satoshi is the smallest unit of Bitcoin. The smallest unit of ETH is called Wei, and is 1×10^{-18} ETH.

Since many other cryptocurrencies also allow up to 18 decimal places, we want to give the full flexibility of rounding off to the users. In Skraps platform, users can round up to 18 decimal digits (depending on the number of decimals the cryptocurrency allows in transactions). For example, if user Bob bought a coffee for 0.000087 ETH, he can choose to round up to 0.00009 ETH or 0.0001 ETH based on his preference. The spare amount of 0.000003 ETH or 0.000013 ETH respectively will be invested in Skraps platform.

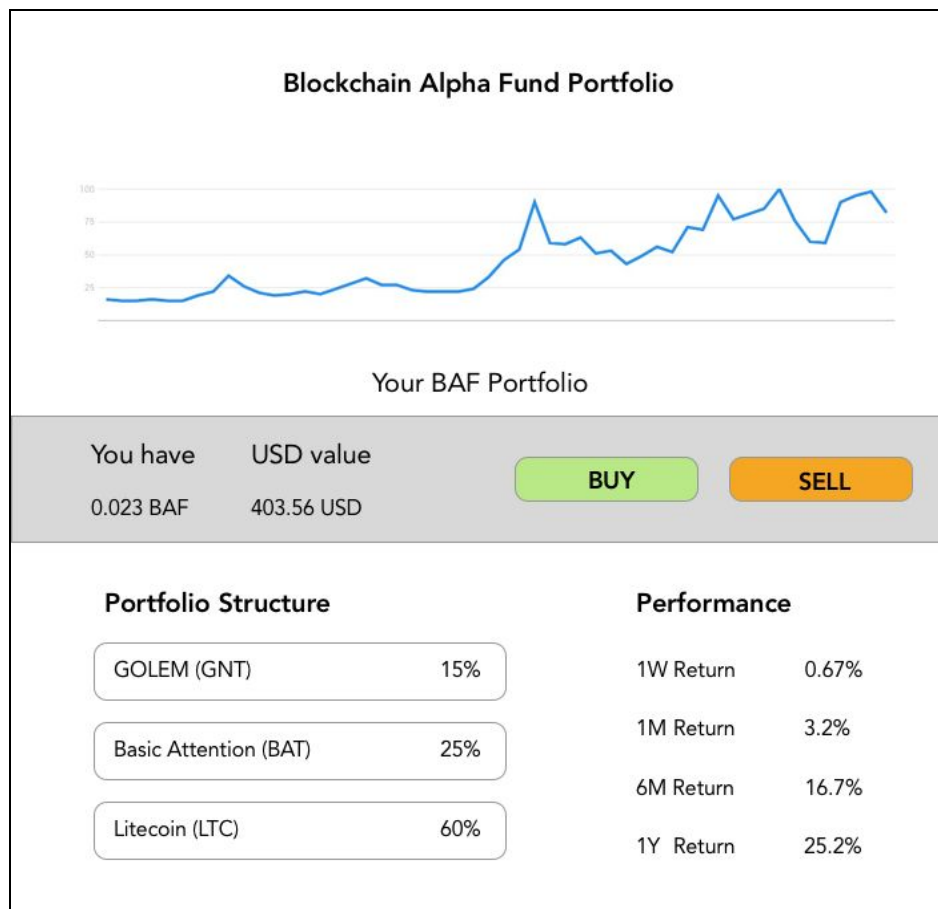


Fig 5. Sample illustration of user created portfolios

6. No onerous requirements

We envision making cryptocurrency investing as simple and intuitive as possible. To achieve this vision, we believe that all the unnecessary requirements which modern day investing platforms impose on users should be dealt away with. We stick to a policy of no artificially imposed requirements on the users. Some of the salient features of our platform are:

- No minimum or maximum amount of investments
- No minimum or maximum balance
- No withdrawal fees
- No payment delays. Instant payment processing
- Instant withdrawals
- Anonymous. No social security numbers required.

7. Security

All of the users' data is protected with 256-bit encryption and never stored on their devices. Customers' peace of mind is our highest priority. At Skraps, we work hard to protect users' information, prevent unauthorized account access and notify them of any unusual activity.

8. Leaderboards and Community

The user portfolios in the Skraps platform will be ranked in a leaderboard. Other users can only partially view this portfolio in the leaderboard, but will have to pay in Skraps token to view the portfolio in total. A portion of this fees will be paid to the portfolio owners and a portion will be paid to SKRAPS. Once the fees is paid, users can copy these portfolios in the leaderboard for their own use.

For users who continuously remain in high ranking in the leaderboard, there will be added rewards. So for every week a user is in Top 10, he will receive some Skraps token. This will incentivise users who are crypto experts to join the platform and improve the quality of portfolios available to users. This will also create a healthy social dimension to the platform by encouraging competition between users for featuring in leaderboard.

4.1 Skraps - Technical Details

Smart contract design principles

Each user portfolio will be managed by a smart contract which will be inherited from the master smart contracts created by the portfolio managers. Also, user portfolios can be inherited from the portfolios of users in leaderboard.

The master smart contracts managed by portfolio managers will be multisig smart contracts requiring keys from both the portfolio managers and the Skraps admin for any updates. This would ensure that only those smart contracts approved by Skraps admin are made part of the master smart contracts.

The table below gives details of some of the key APIs of SKRAPS platform

<code>masterPortfolioContract</code>	This API returns the multisig owners (SKRAP key and Portfolio managers who are the only ones able to write new portfolios to the master list). Returns the list of portfolio contracts, owners (portfolio managers) and names (ENS) of contracts. Also provides methods to update/create new portfolio contracts.
<code>multisigSignMasterContracts</code>	When a portfolio manager wants to update a portfolio, he pushes the transaction via this API. Once the Skraps admin review the changes, the transaction will be co-signed so the master contract updates with new version of the portfolio
<code>exchangeEngine</code>	Provides ability for users to exchange fiat (via credit card, bank account) for any cryptotoken. Connected to kraken, poloniex and cex
<code>createCustomPortfolio</code>	User creates a custom portfolio, defines a name (ENS) and invokes <code>masterPortfolioContract</code> method to get listed
<code>send2Portfolio</code>	Sends actual funds from the user's wallet to the right crypto-assets according to user's portfolio choice

Table 2 : Some key APIs of Skraps platform

Security

Skraps platform will support state of the art BIP 32 compliant cryptography based on 12 word keys. For non-BIP 32 compliant wallets and platforms, the same 12 word keys will be used to

encrypt using AES-256 standard. The string with coin wallet address and key will be encrypted with above standard and sent to the user's registered email and the Skraps backend. The 12 word passphrase will only be shown in user's frontend app. Since, wallet keys can't be decrypted without the 12 word passphrase, the user will be in complete control of the transaction.

Oracles

To get the prices of different tokens, we will use the services of oracle services which will be posting the correct price of crypto-tokens from the real world on blockchain. This will allow regular tracking of performance of different portfolios. We will use 2 open and auditable oracles as the source of ground truth. Skraps will also maintain an independent oracle, which will be to arbitrate the truth if the two external oracles don't agree.

Smart Investing

Transaction fees charged by public blockchains must be carefully managed to give the user get maximum value for their investments. The Skraps frontend have will have the ability to do 'smart sending' when mining fees are low. Weekends for example are known to be good time to send funds. Since every transaction needs to be signed by the user by providing their key, actual signing of transactions can only happen when they have opened the app. To achieve the lowest transaction fees for investments made by the users, we have devised a *'smart sending'* mechanism.

The app will ask the user to 'send funds' when he opens the app. But the fund will not be sent actually. We will store a signed transaction in the backend and the backend system will send the signed transaction at an optimal time. In this way, SKRAP servers won't store the private keys. Only signed transactions will be stored temporarily which shall be sent when fees are the most cost-efficient.

Easily discoverable portfolio Smart contracts

Skraps platform will use [ENS](#) service to name user smart contracts so that they are easily discoverable. ENS offers a secure and decentralised way to address resources both on and off the blockchain using simple, human-readable names. This will enable users to discover other portfolios easily and may be invest in that. For example, instead of user sending coins to smart contract 0xFFFAAxdb, they can send to John's Emerging Crypto portfolio. This will also help them share details about a particular portfolio with other users.

Exchanges and crypto conversions

Skraps wallet will be connected to three different exchanges ([Kraken](#), [Poloniex](#), [cex.io](#)) via frontend API in order to buy ethereum (if user has fiat) in the most optimal exchange. Ether can then be used to buy the target cryptocurrency using shapeshift.io API. Skraps wallet will be integrated with Shapeshift to enable real time conversion from one crypto-token to another.

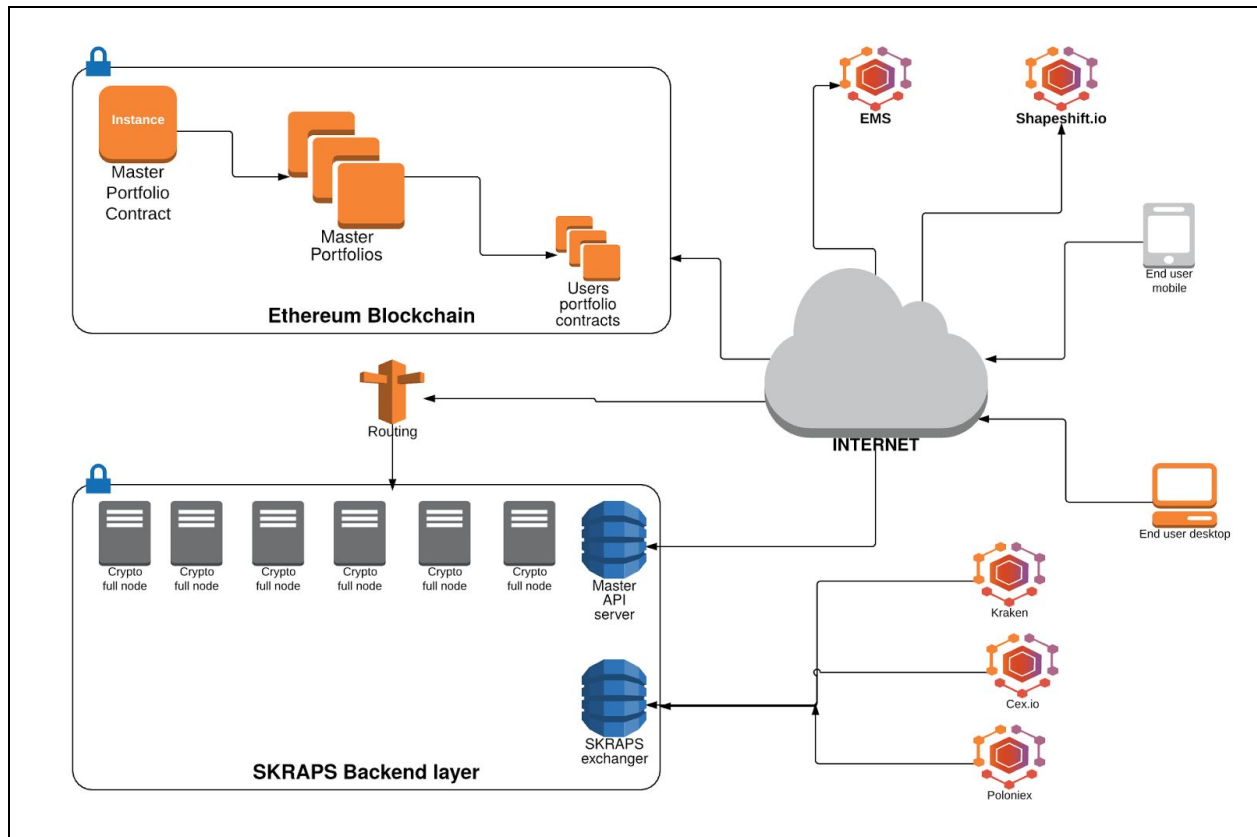


Fig 6. Skraps Technical Architecture

Why are we issuing tokens? Why not just take BTC/ETH for transaction fees?

The key reasons which inclined us towards a token sale are:

1. Tokens will help the growth of the platform, as early investors can buy tokens at a lower price and act as evangelists so that more and more are introduced to Skraps platform. As more and more people join the Skraps platform, the token price would increase. This would help early investors make good returns on their investment. Token issue thus helps solve the problem of cold start which affects most platforms. As more people join Skraps

platform, we can offer them services at lower transaction fees. (Same concept as bigger mutual funds can charge lower transaction fees as their fixed costs are distributed over a larger number of customers)

2. SKRAPS token will be used to pay the portfolio managers in the platform. This would ensure that the incentives of the portfolio managers are aligned with those of the Skrap platform. Since portfolio managers are paid in tokens, they will benefit if the tokens increase in value. If the portfolio managers are able to generate good returns, more customers will be attracted to Skraps for investing which will increase the demand of the token and this its price. This is win-win for both the portfolio managers and the platform.
3. Token sale (ICO) is a good way to generate initial investment which can fund the early development and marketing of the product.

5. Market and Competitive Landscape

5.1 Business Model

Skraps charges 1 SKRAP token per month for all accounts irrespective of the amount invested in each account. We believe that a simple, no hassle pricing will attract more and more customers to our platform and will truly make investing frictionless.

5.2 Competitive Landscape

There are a few “spare change” investing platforms which have achieved a good amount of success. Key players which invest fiat currency to fiat currency portfolios are:

1. [Acorns](#)
Acorns is a finance company that allows individuals to round up purchases and automatically invest the change. It was founded in Feb 2012. Acorns now boasts more than 2 million investment accounts with 600,000 opening in 2017 alone. It has raised over \$96 million in investments from some of the world’s leading venture capitalist[5].
2. [Stash](#)
Stash is an American financial technology company offering a mobile app with micro-investing services. It aims to simplify investing and make it more accessible. It was founded in February 2015. As of December 2016, users have invested over \$25 million through the app. Through October 2017, the app had approximately 1.2 million users [6]

3. [Clink](#)

Clink is an application which focuses on making investing simple for millennials by enabling micro-investments. Clink was founded in 2015 and has raised \$2.1 mn funding as on October 2017[7].

Key players which invest fiat currency to cryptocurrency portfolios are:

1. [Coinflash](#) - Coinflash invests fiat currency into cryptocurrencies. They get access to users credit cards and debit card accounts using [Plaid](#). Based on the user's investment settings, the spare change from user's transactions in fiat currencies is invested in cryptocurrencies. At the time of writing, Coinflash only supported investing in Bitcoin and Ether.
2. [Dust](#) - Dust is not live as of now, and only has a landing page for collecting emails of interested customers. Dust invests fiat currency of users to cryptocurrencies of user's choice. At the time of writing, they supported only Bitcoin, Ethereum and Litecoin

How is Skraps different from other projects which do spare change investing in crypto?

Dust and Coinflash invest fiat currency into cryptocurrency. Skraps invests fiat and cryptocurrency into cryptocurrency/crypto-assets. Most tokens are spent in fractional amounts (most up to 18 decimals) so it makes perfect sense for Skraps to invest crypto into crypto as well as fiat.

6. SKRAPS token

SKRAPS token is the native token for Skraps platform. The symbol is SKRP.

6.1 Token Usage

Skraps token will be used for the following purpose:

1. The service fee of Skraps platform will be charged in SKRAPS token. As detailed above, each account will be charged 1 SKRAPS token per month, irrespective of the amount invested by them.
2. SKRAPS token will be used to pay the professional portfolio managers who will be managing the cryptocurrencies portfolios in the platform. This would also help align the incentives of the portfolio managers with the success of the platform. If the portfolios

perform well, more and more users will be attracted to Skraps platform. This will lead to increase in the value of the token and the earnings of the portfolio managers would also be higher.

6.2 ICO Details

The total number of SKRAPS token which will be ever created is 110 mn. Out of this 66 mn will be available as part of the token sale in ICO and whitelist. 11 mn tokens each will be reserved for founders and advisors/team. 5.5 mn tokens will be reserved for spending in Marketing and Bounty programs. 16.5 mn tokens will not be issued at the time of ICO and will be reserved for a future token issue. All unsold tokens will be burned. (Fig. 7)

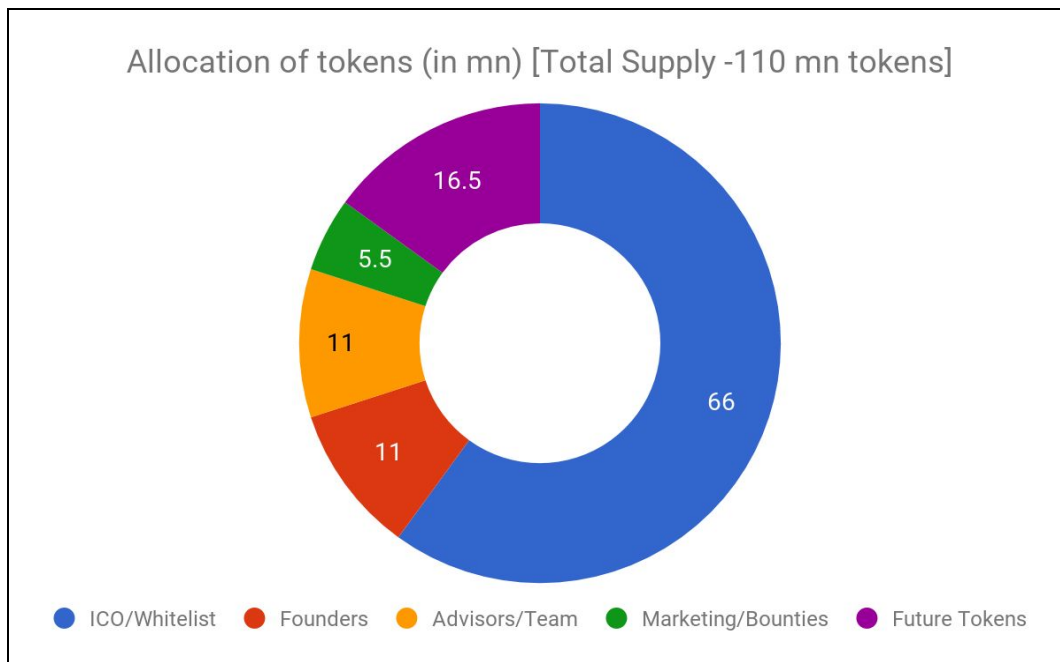


Fig 7. Token Supply

People can buy tokens by paying in BTC or ETH. The prices will be fixed in BTC and ETH. To encourage early investors in the ICO, the price will increase as the weeks go by. For investors at whitelist stage, 1 SKRP token will be available for 0.00005 BTC. After the launch of ICO, investors in the 1st week can buy SKRP token at 0.00006 BTC. After then, the price will increase by 0.00001 BTC every week. The detail of token price schedule is given in Fig. 8

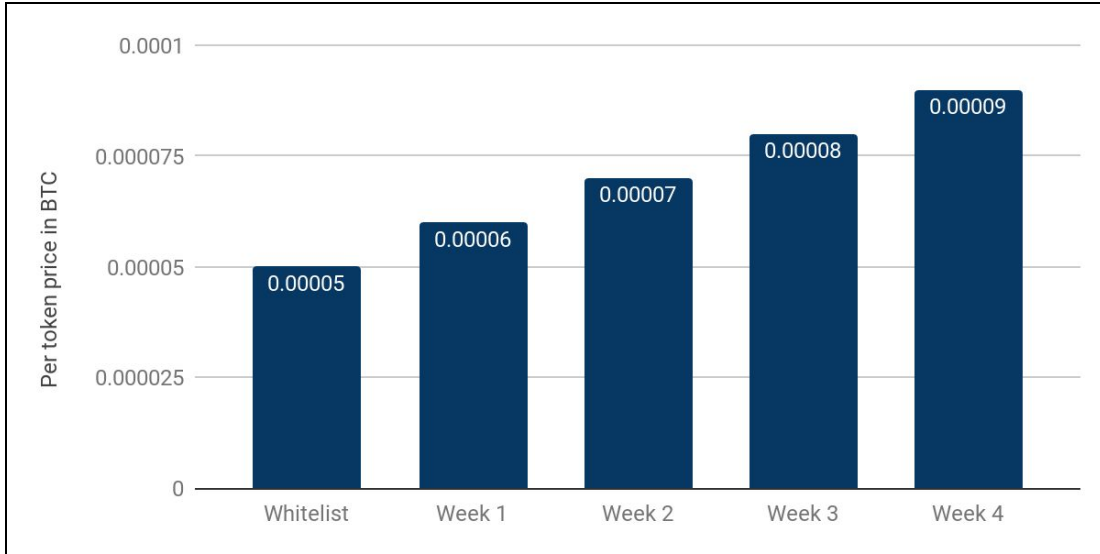


Fig 8. Token price schedule in BTC

Token price schedule for investors buying in ETH is shown in **Fig. 9** below

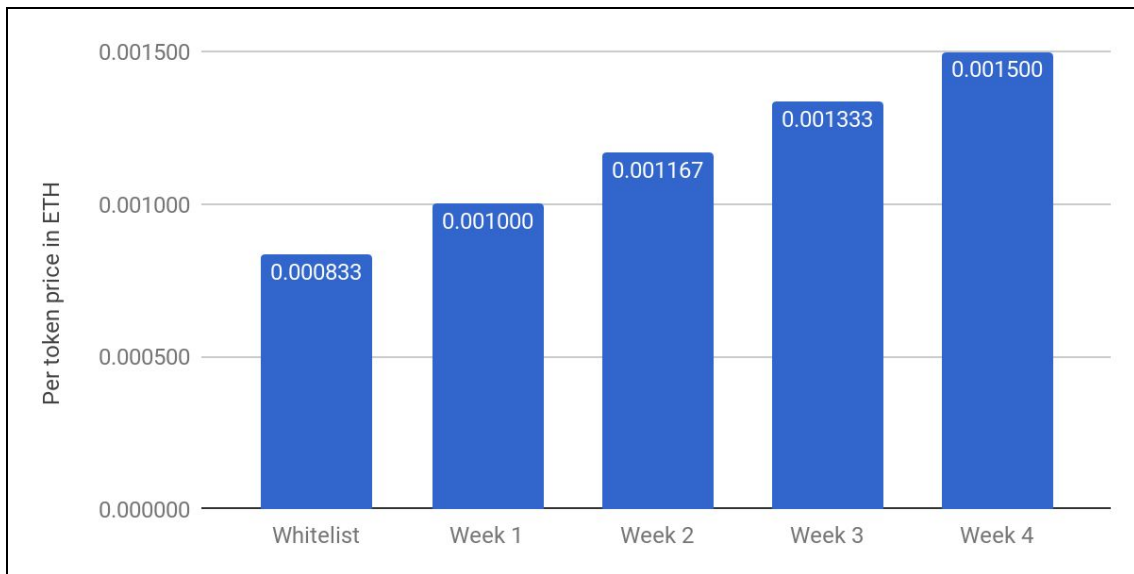


Fig 9. Token price schedule in ETH

6.3 Use of Funds from ICO

Funds raised from ICO will be used primarily for the development of the platform and marketing it to acquire users. Since our focus is on making investing as simple as possible and introduce new customer segments to investing, spreading awareness about our platform and services would be a key part of our growth strategy. Rest of the fund will be used for paying the team and portfolio managers, legal fees and exchange fees. Details of projected fund usage are given below in **Fig. 10**

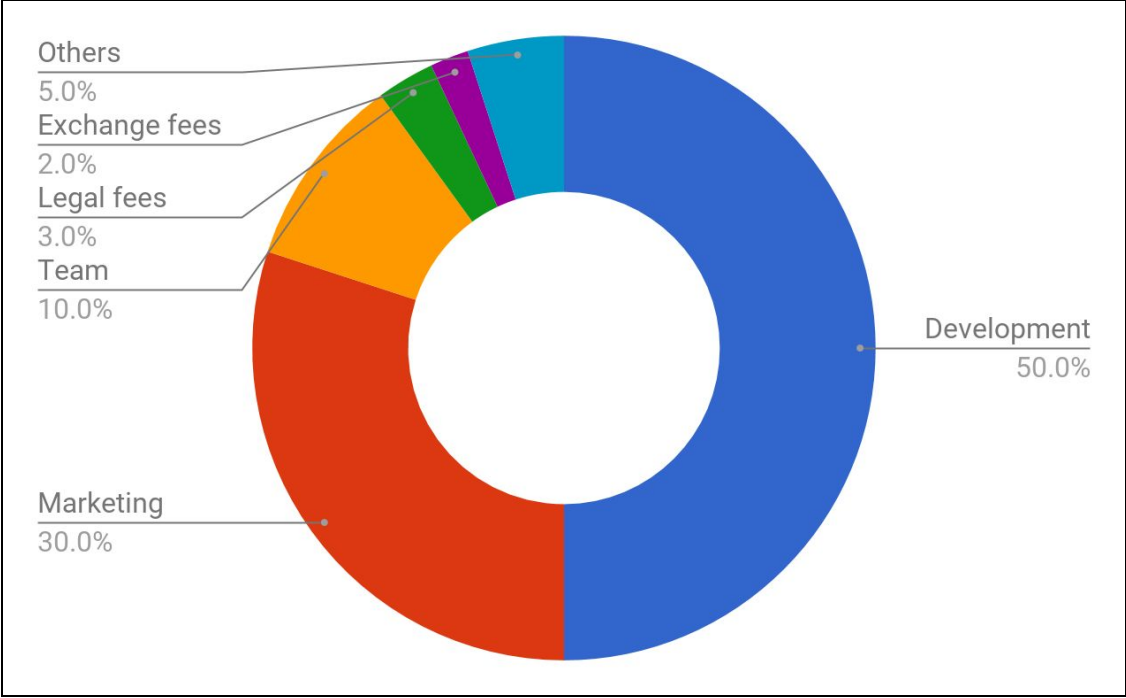


Fig 10. Use of funds from ICO

6. Roadmap

Figure 11 shows the roadmap of Skraps platform in detail. We will focus first on creating a desktop app for the Skraps platform by April 2018. Once the desktop app get stable, we will focus on creating a mobile version of the app and plan to do a public release of mobile app by June 2018.



Fig 11. Roadmap for Skraps platform

7. Summary

Skraps is a micro-investing platform where users can invest by rounding off their transactions in cryptocurrencies. The spare change is invested in a portfolio of cryptocurrencies chosen by the users based on their risk appetite. These portfolios are managed by professional cryptocurrency managers to ensure the best returns on investments. We introduce SKRAP token which is used to pay transaction fees in Skraps platform and professional fees to the portfolio managers. Our vision is to make cryptocurrency investing so simple that everyone can begin investing in just a few clicks. Skraps platform is our first step in that direction.

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