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## Virtual Communities Enabled Smart Crowd Funding System

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**ABSTRACT:** The Crowd funding application is intended to solve the funding problems of early stage start-ups, small and medium sized enterprises (SMEs) and also for personal cause. It is an innovative way to provide a platform to connect the campaign creator and the crowd. Once the idea is posted on a crowd funding website it is open for everyone, protecting the idea from copying is very important. This can be done by registering patents, trademarks and copyrights. Crowd Funding is growing rapidly and driven by social causes. Financial crisis results in failure of number of companies. Banks have restricted themselves to lend money to many start-ups and SMEs. Hence, there is a need for an alternative source to fund these companies which is provided by this crowd funding application. All campaigns are sorted in categories to which they belong. The campaign starter can withdraw the funds received after the campaign's end date or when the goal amount is reached. They can even continue to receive funds more than the goal amount till the campaign end date. With the help of social media, the campaign is shared so that it reaches a lot of people and there is a greater chance of getting more funds. The campaign starter can keep a track of their funds received, donor details and have an option to thank them, which encourages donors to support more projects. The donors will receive further updates about the campaigns they funded. The user may receive rewards from the company they funded.

**KEYWORDS:** Funding, Donation, Fund raising, Start-ups, Financial support, Social media.

### I. INTRODUCTION

Crowd funding is the practice of funding a specific project, business venture or social cause by raising many small amounts of money from a large number of people typically through the internet. These contributions are sought through an online crowd funding platform, while the offer may also be promoted through social media. Traditionally early stage funding was offered by Angel Investors followed by Microfinance organizations.

Alternative financing model that has emerged in the recent years is crowd funding. Kick-starter is one of the leading crowd funding platforms. The internet and its new applications like social networks have empowered the crowd funding model to suit today's market and needs of the entrepreneurs, capitalizing on the power of the crowd to provide, along many benefits, financing and marketing.

Crowd funding can be divided into four categories: donation crowd funding, reward crowd funding, peer-to-peer lending crowd funding, and equity crowd funding. Among these categories donation crowd funding and reward crowd funding comes under community crowd funding. Peer-to-peer lending crowd funding and equity crowd funding comes under financial return crowd funding.

**Donation crowd funding** denotes solicitation of funds for social, artistic, philanthropic or other purpose and not in exchange of anything of tangible value.



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**Reward crowd funding** refers to solicitation of funds, wherein investors receive some existing or future tangible reward as consideration. Most of the websites which support donation crowd funding also enable reward crowd funding.

**Peer-to-peer lending crowd funding**, an online platform matches investors with borrowers in order to provide unsecured loans and the interest rate is set by the platforms. Some peer-to-peer platforms arrange loans between individuals, while other platforms pool funds which are then lent to small and medium-sized businesses. These loans may become securities with the contract between the investors and the borrowers being the security note.

**Equity based crowd funding** in consideration of funds solicited from investors, equity shares of the company are issued. Start-ups are funded through private equity, angel investors or loan arrangements with a financial institution. Any offering of public equity takes place only after the product or business becomes commercially viable. In equity based crowd funding solicitation is done at an earlier stage.

**Benefits:** Crowd funding provides a much needed new mode of financing for start-ups and SME sector and increases flows of credit to SMEs and other uses in the real economy. SMEs are able to raise funds at lower cost of capital without undergoing through rigorous procedures in this mode.

Crowd funding provides new investment avenue and provides a new product for portfolio diversification of investors. The operators of crowd funding platform may engage in vetting or due diligence of projects to be included on their websites, to maintain the reputation of the website.

## A. CHALLENGES OF CROWD FUNDING

The major issues are listed below:

- Disclosure risk
- Risk of fraud
- Creator business incompetency
- Difficult to deal with large number of investors

An above challenge should be considered while developing the application and subsidy of crowd funding systems. Even the various limitations are addressed in the funding based system however, users need to solve the fraudulent activity and also enable the security protections in the Advertisement / start up's system.

## II. RELATED WORK

As per the author Rafat M. Abushaban, "crowd funding as a catapult for innovation in the Middle East: obstacles and possibilities" this approach was computed the functionality of crowd funding system only on the business application domains and that applications are applied into the Middle East countries. This paper was not incorporated with any of the security images / data protection from the funding system or funding agency. [1]

As per the author Endrit Kromidha "A comparative analysis of online crowd funding platforms in USA, Europe and Asia" this paper compares various existing crowd funding platform like Kick-starter, Crowd funder, Crowdonomic. In these processes the transaction charge on every donation made by the users is considerably high. [2]

As per the author Prinsha K "A Study on Crowd Funding and its Implications in India", this paper focuses on the funding for start-ups and SME's. There is no such funding platform for social and personal cause. [3]

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## III. PROPOSED WORK

The main objective of this paper is, to receive the funds for developing or creating new initiatives / start up to public usefulness. In the previous approaches, funding was applicable only for the large and big start-up only. However this approach could be an effective mechanism, to develop and spread the new findings, initiatives, key ideas over the online social networks (OSN). The following system architecture will provide the enough information about the proposed model. Figure is depicted below:

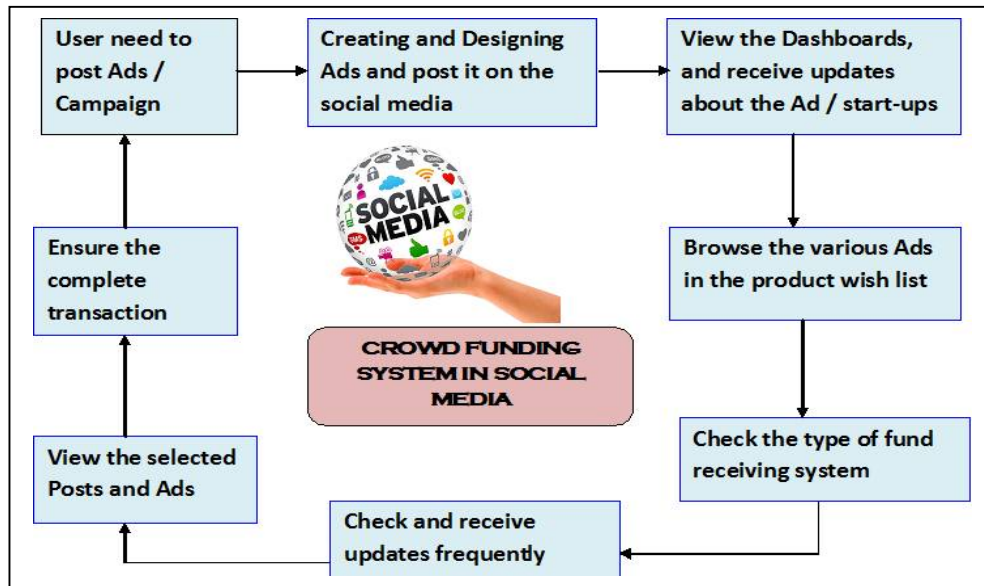


Fig: 1. a) Proposed System Architecture

This model emphasizes all the functional elements and its factors can be specified in the online social network (OSN) system in order to develop the new start up or project at the non profit level. This technique can be applied into the various business application domains and incorporate the services in the both profitable and non profitable organizations. The major objective of this approach is, to popularize the new initiatives among the public through social media forum.

### A. PROCESS OF CROWD FUNDING SYSTEM

The major advantage of this proposed model is, increasing the fund system for developing many new initiatives and that can be useful to the society. The way to incorporate the start-ups and initiatives are processed in the social media. For security concern, some of the security related images are considered in the social media. Because of ensure the access and funding / fund raising partners among online social community.

### B. TYPES OF CROWD FUNDING MODELS

Some of the typical crowd funding models are given below for the purpose of knowing the funding system factors and to identify what are the ways to improve the crowd fundraising.

- ❖ Gift based funding model
- ❖ Royalty based funding model
- ❖ Subscription based funding model
- ❖ Fixed based funding model
- ❖ flexible funding model

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Above mentioned types of crowd funding models are legitimate to process the user level or the developer level new actions and start-ups to improvise the action plan taken by the non profitable organizations. The various types of implementations are taken place in the previous approaches like crowd funding, crowd sourcing and other applications. Still, the major drawback of funding transaction charges is 45%. So, the actual start-up agreed persons are not receiving the proper fund from the donors. It is considered as a one of the major issue in the developer side to continue the rest of new initiatives in a good progress level.

## IV. IMPLEMENTATION WORK

An initial step is the project creator /new actions / new initiatives creator needs to set a proper target funding level. The created project funding target is not reached to the other individuals from the public community then, at that moment need to ensure the support hands of crowd funding. It will ensure that the target point is possible for the creator to deliver on their project and the rewards can be offered. The following picture comprises all the functionalities of crowd funding system operation.

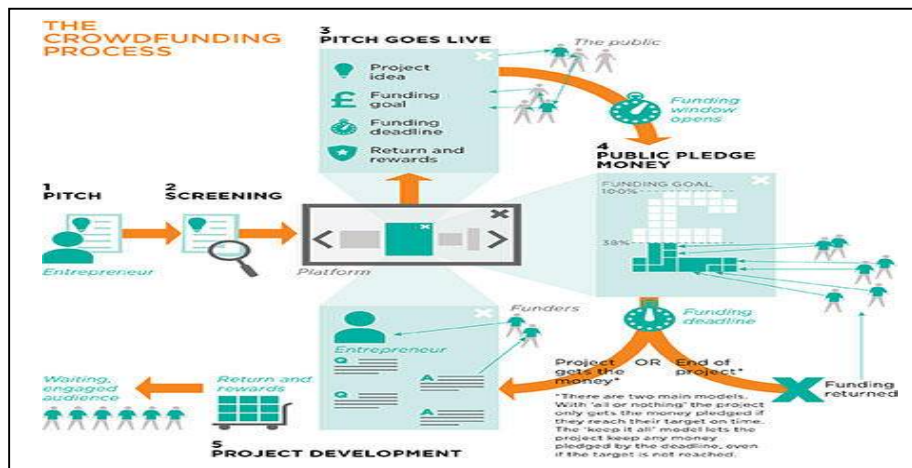


Fig: 4.a) The General Process of Crowd funding

In general, there will be main types of funding model levels such as threshold setting level (Specific point) and keep it into the all level of computational process. (cumulative approach)

### A. FLOW CHART APPROACH OF PROPOSED MODEL

In Proposed model, it is mentioned that the fund transfer can be done through the web and also we need to publish the ads, posts, start-ups in the social media. In order to prevent the hacking entry in the social media, users prefer some of the security related images are used in the crowd funding system. The flowchart has been illustrated below:

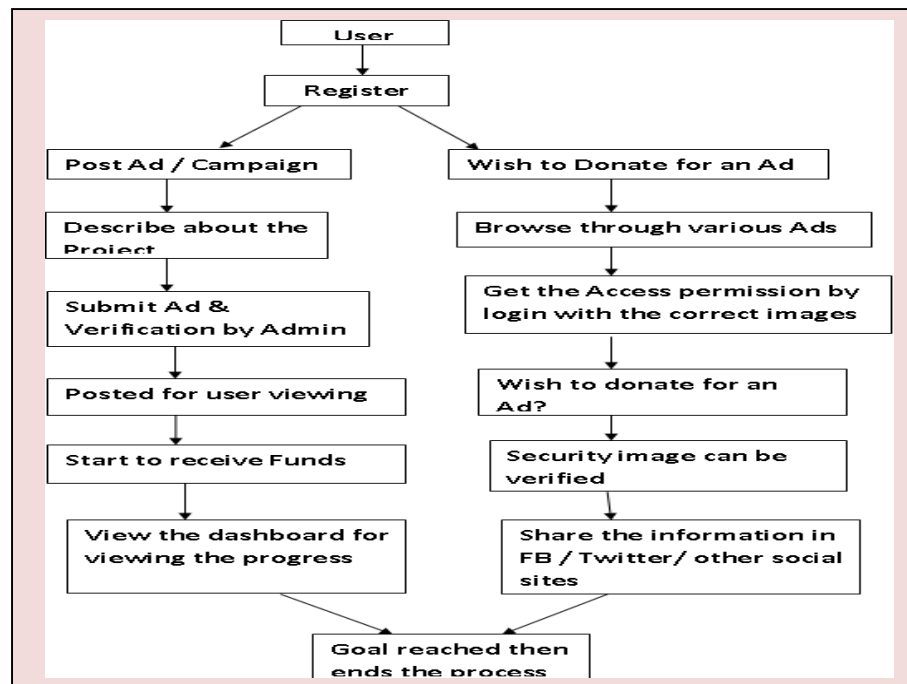


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This approach could be an effective mechanism, to prevent the fund transaction among the fund donation community. This approach is used to make the Ads, posts and new initiatives much popular through the social media sites. While accessing the ads and posts through online social networks it is mandatory to analyze the security and privacy factor. If anyone is stealing the posted Ad or someone is blocking the fund transfer. This information is processed by using the image selection and image matching process. For this technique, early prediction is applied and also monitoring the login access frequently...

## B. TOOLS USED

In order to implement the crowd funding operation the adequate and supporting tools and IDE's are specified in the proper platform. Some of the tools are listed below:

- Apache Web Server
- MySQL Server
- phpMyAdmin Database
- ATOM Development Environment

These components are considered in the web environment and also measuring the performance and its efficiency of a crowd funding system to eliminate the problem of Blocking fund transfer.

## C. DATASETS USED

There will be a specific inputs are considered for the implementation process. The following datasets are used in the execution process. Data sets are given below:



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## Dataset – I

Goal	Parent_category_string	Reward count	Duration
Profit	Government service	124	#3 m
Non profit	Public usage news	8932	# years
Service oriented	All types	13408	Not defined

## Dataset – 2

Twitter Specification	Face book_connected	Fkgl	Project Success
Boolean value	Boolean Value	Defined	Yes
Defined Constraints	Accepted	Defined	Yes
Boolean value	None	Defined	Partially
Constrained set	Verified	Defined	Yes

## V. RESULTS AND DISCUSSIONS

The major service based parameters are computed in the crowd funding platform and also enables the huge initiatives, projects, start-ups among the public users. This dataset has been processed in the fundraising environment. This can be access in the service based operations and also enables the non profitable initiatives are provided as new initiatives to the user's community.

### Result Set

Type of Initiative	Service agreed (Y / N)	Fund donation	Security ratio (% 100)	Images	Social media interaction
Government services	Yes	Agreed	98.56%		Success
Business Access	Yes	Processed	89.23%		Success
Profit service	Yes	Verified	92.502%		Success
Non profit service	No	Transfer	98.094%		Success

From the analysis outcomes of the result set it has been proved that through the early prediction and other significant crowd funding security operations are processed as both profitable and non profitable type of services to improve the adaptability and getting fund with the less transaction charge in the fund donation system.



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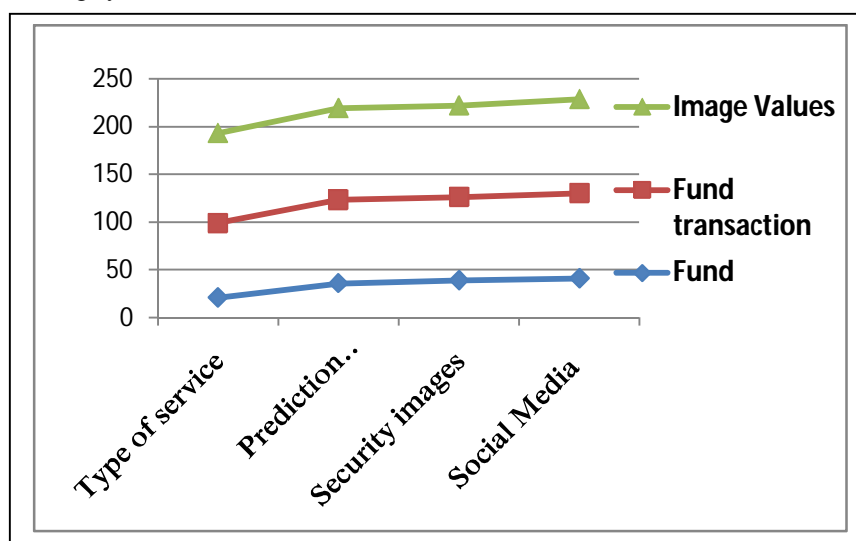
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## VI. EXPERIMENTAL RESULTS

During the time of ad processing and donating for the particular ad it has been examined that lots of crowd funding and crowd rising has been widely shared through the social media. The following diagram shows that, the result implication of a crowd funding system.



The results can be computed as the value of crowd funding operation and also securing the funding transfer information among the web. The cumulative results can be compared with the recommended system and also efficiency can be improved in the proposed technique.

## VII. CONCLUSION

From the proposed model, it has been proved that the various crowd funding operations and its platforms can be enhanced in the increasing the efficiency of fund transaction system. It is also to be specified in the cross platforms to implement the distinct type of new start-up's and small scale business to improve the business agility. It encompasses the approaches of how to incorporate the various new business based applications through the social media based applications.

## VIII. FUTURE ENHANCEMENT

In future cases, the various service based operations are computed. This crowd funding is possible to enhance in the domain of cyper security, IOT and so on. From this kind of approaches a small start-ups also be funded in the medium scale business (MSB).

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## BIOGRAPHY

**R. Poorvadevi** is an Assistant professor of CSE department. Currently pursuing PhD also published more than 20 journals and 25 papers in international conferences. There are reputed and Scopus indexed publication in the domain of cloud computing. She received the best teacher award and meritorious award. She got the appreciation as good reviewer, good guest editorial board, Associate Editor-in-chief for the various journals. She guided the numerous projects for UG and PG students in the various domains.