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# Farmer's Crowdfunding: A Portable Solution for Preventing Suicide Deaths of Farmers in India

Shanthi M. B[1], M. Aishwarya[2], Sonul S. Babu[3], Suchithra I. M.[4] and Suraj R. Bellad[5]
[1-5]CMR Institute of Technology, Bengaluru
shanthi.mb@cmrit.ac.in[1], mais16cs@cmrit.ac.in[2], sosb16cs@cmrit.ac.in[3], suim16cs@cmrit.ac.in[4], surb16cs@cmrit.ac.in[5]

***Abstract*—Crowdfunding is a technique for financing by pooling often small amounts of capital from a large number of people, in many cases through fund raising platforms that are set up on the Internet. Crowdfunding can be structured in different ways as per the need of bringing up the societal needs. Agriculture is a broad, ever-changing field which is greatly dependent on various environmental factors. Over the recent years, there is a huge increase in suicide death rate of farmers because of poverty and the crop losses. This trend of committing suicide has honed with globalization, enveloping various countries including India. In Order to solve the financial crisis faced by farmers from its root level, Farmers' crowdfunding was coined for its amazing practical solution to generate and manage the funds for Agriculture. The need of implementing the application is really high as it is capable of saving the lives of farmers as well as improving their lifestyle. The proposed work focuses on developing an android application through which the farmer and the funder is linked in a secure way through a cooperative society to get financial aid during critical times in agriculture.**

***Index Terms*— Crowdfunding, societal, platforms, structured, prescription, committing, application, financial, critical.**

## I. Introduction

India is a land of agriculture and farmers are indeed the backbone of our nation. The Earth's soil is just dirt to most of us but to a farmer it becomes a potential. Agriculture is the main occupation in India and about 70% of the population is engaged in this activity. For the progress of our nation, the success and well-being of farmers is of utmost importance. In order to ease and reduce the complexities of the issues faced by the farmers, the idea of farmers Crowdfunding originated. The main aim of Crowdfunding is to tackle the problem of middlemen and raise the value of farmer's yield. The project involves users like investors who are capable and interested to fund the farmers in need, supermarkets that take care of buying and selling of yield and farmers who need financial support. The farmers suicide rate in India has ranged between 1.4 and 1.8 per 1,00,000 total population with an average of 10 suicides per day. The overall rate of suicide of farmers for a decade of time is shown in the Fig.1.
The natural disasters, poverty and economic crisis has resulted into continued decline in the interest in agriculture and slowly people started losing hope in facing sudden adverse conditions and started moving towards cities to find other jobs for survival. As per the observation, based on employment in agricultural domain in India was reported at 42.38 % in 2019, according to the World Bank collection of development indicators. The graph plot in Fig.2 depicts how drastically people loss interest in agriculture with time. If this continues for few more years in the same direction, it would drastically hit the agriculture sector.

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Fig.1 Farmer’s suicide rate in India as per NCRB report

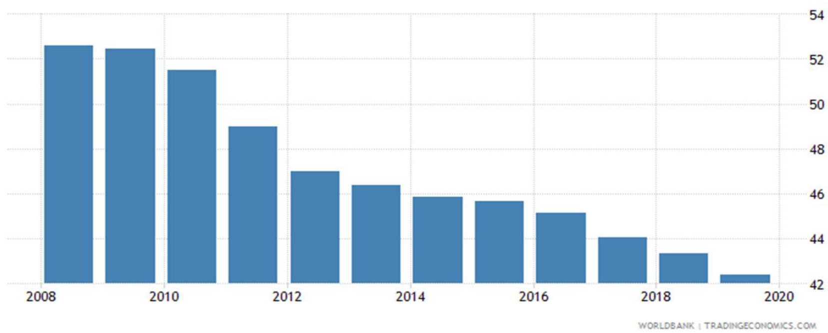


Fig. 2 Decline in employment rate from the year 2008 – 2020. (Source: NCRB Reports)

The impact of Corona virus outbreak on agriculture is reported to be even worst compared to all the natural calamities. As per the survey conducted by Indian express newspaper during this lock-down period, greater part(56%) of the farmers have said that, the lock-down has impacted their ability to prepare for the upcoming sowing season. It has identified that the farmers with smaller farm size were likely to skip one time meal for last 2 months compared to the farmers with larger farm areas. This has shown that there is a very strong association with food insecurity and the size of the farm land. 10 percent of the farmers could not harvest during lock-down and the ones who did harvest have come across crop loss. Most of the farmers reported that the low market prices and inability to access their lands because of the restrictions updated not to travel. The Crowdfunding system simplifies the traditional way of lending money that involved high rate of interest for farmers along with financial support; system ensures high value for the farmers yield. The proposed system brings farmers and the society through an application by facilitating selling and buying of goods through a common platform. It avoids the intervention of middle man in business. It provides an emergency fund which will support the farmers when they face downfalldue to natural disasters and recover their loss.  This would surely reduce the suicide rate of farmers thereby improving their lifestyle.

## II. Related Study

Ishan Janbandhu, Anand Philip Kurian et.al in [1], Investigates the link between the farmers' suicide death and the various factors affecting the agriculture. Investigation has shown that the suicide rate was less when there was increase in productivity and irrigation facilities. Muzaffar Assadi in [2], has discussed about the capitalist developments in the state, during the post-independence period. Capitalist development initially created euphoria however on later date it translated into massive agrarian crisis. In the papers [6-8], authors noticed that the trend of farmers committing suicide has sharpened with globalization enveloping different continents or the countries, which was noticed in parts of India, including Karnataka. The authors have developed a web application, where the farmer needed to provide details of his land, the crops to be grown and expected cost for the crop to the government. If any damage occurs then farmer should upload the corresponding videos or images in the site so that he will get the loss amount immediately from government. In [9], author has stated that the problems of indebtedness as well as suicides do not merit narrow interpretation or solution, as these are only symptoms of a larger malaise. They have to be contextualized in the light of stagnation of agriculture, rising levels of rural unemployment and dissipation of economic and social infrastructure. In the paper [4], authors have discussed about two new institutions on the disaster risk diversification in rural China. They have presented the idea about bringing up the rural credit cooperatives and private sectors of financing for investigating combination of micro-credit and the private loan in the liquid farmland management right market to decrease the total amount of risk premium in the society. In [10author has discussed about the analysis of source of loan, in terms of percentage of outstanding loan in banks was found to be (36%), by moneylenders (26%). They have observed that, there was less motivation from farmers' end, to make use of private sector financing facilities. In [5], the authors have discussed about the influence of blockchain technology for data store and promoting of this as a methodical approach in applying it to large software systems.

## III. PROPOSED STUDY

With the agriculture sector being perceived as high-risk, identifying a source for funding is considered as a tall order for the farmers, when they have smaller assets to pledge as collateral. This has made them to borrow money from private informal lenders with high interest rates. This lead in resulting of cycle of poverty that would last for generations. Poverty and the unpredictable natural calamities are resulting in increased cases of farmer suicide. In order to prevent such high risk situations, a new platform has been introduced to provide financial and technical assistance to the farmers, called ‘Farmers Crowdfunding’. Crowdfunding makes use of online channels to raise fresh capital from willing donors or lenders, who buy into the business pitch or goal presented by the proponent. The proposed work has a focus on implementing an android application for connecting the farmer to the funder through a cooperative society, where funders can extend helping hands through a secure transaction.

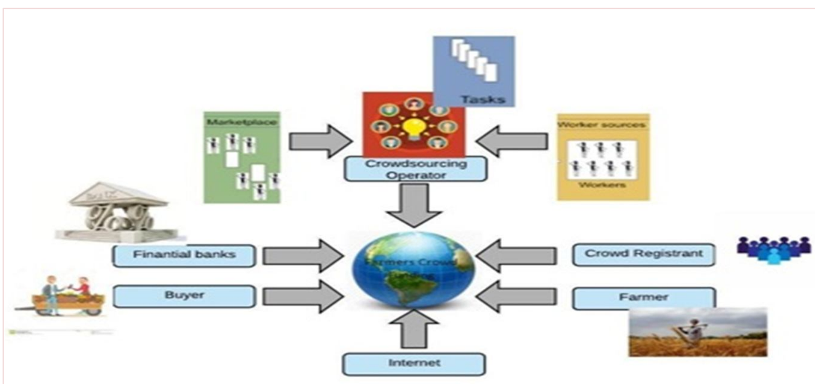


Fig.3. Farmer’s Crowdfunding System

Farmers are also given a platform to sell their crops in return to the funders, without the intervention of the intermediate agents. The formal representation of a system is given in the Fig.3.

## IV. IMPLEMENTATION

The implementation of the application can be grouped into three major stages where each stage performs an important aspect of the application: Farmer, Funder and the Co-Operative Society. Farmer and Funder are connected through the Cooperative Society for the required money transactions. Based on the role and the language chosen by the user the respective functional unit will get displayed once the submit button is clicked. Here the user login page will be displayed in two different language where the registered user has to login to access the various functionalities of the application. In order to make the application user-friendly, the application is designed for interaction in Kannada as it is the local language in Karnataka. Adobe Xd tool is used to design the User Interface and to understand the user experience which includes the basic features and menus from which the final application is expected to evolve. The interface in Fig.4 is the main screen of KissanRakshak application where user can choose their role and the language that they want the application to be displayed.

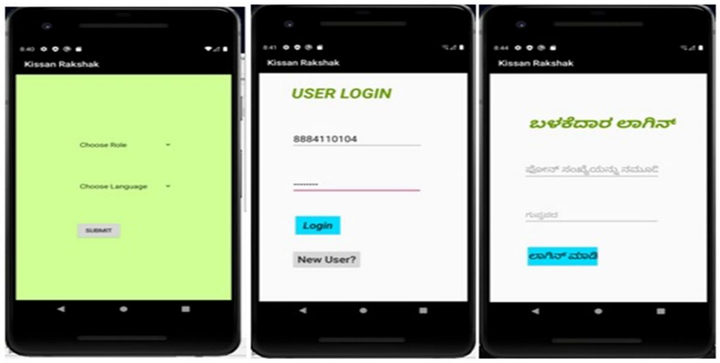


Fig.4 Main Screen of KisanRakshak Application

*A. Creating Farmer Profile*

The main objective of ‘KissanRakshak’ application is to provide all the necessary features and functionalities to farmers and the farming sector. Thus, the farmer interface comes with secure login and an easy sign-up page. Once logged in, the farmers can get updates on various governmental farming policies, information on crop details, request money from co-operative society and also can check their banking details. The interface for farmer to interact with Kissanrakshak application has been shown in the Fig.5.

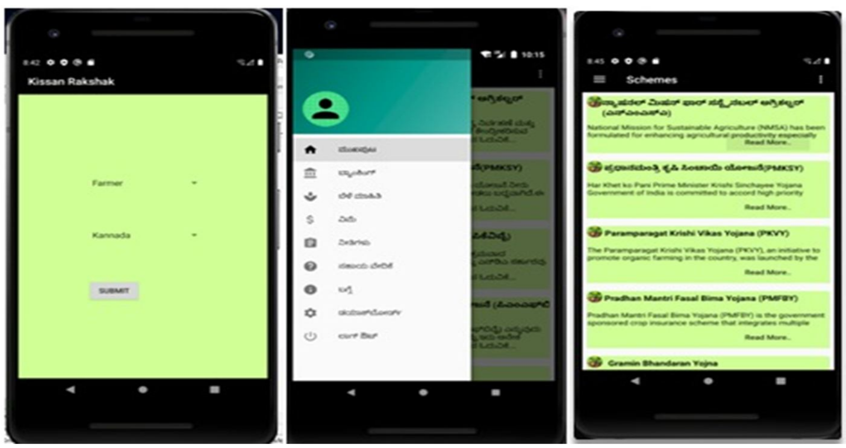


Fig.5 Farmer’s profile interface in KissanRakshak Application

The application is designed to educate farmers with latest trends in the farming sector. The farmers are provided help in case of diverse situations like inability to produce the crops successfully due to various reasons. The application directs them to access the crop insurance to avoid the loss on failure of crop which is handled by Co-operative societies.

*B. Creating Funder Profile*

Funders in this context refers to the people who want to fund some amount and help farmers out, also avail the opportunity to purchase Agri crops directly from farmers. They play a major role by raising funds thereby creating a helping hand to the farmers. The designed funder interface is shown in the Fig.6.

Funders have to register with cooperative society and then easily access the various functionalities. Apart from this, funders can also purchase the crops cultivated by farmers or they can get the direct returns in form of money. Funder can see the schemes that government is setting for farmers so that they can reach out to the farmers through the cooperative society.

*C. Creating Cooperative Society Profile*

Cooperative Societies are the bodies that keep track of the number of farmers those are registering and other details like claiming insurance etc. Cooperative society can access the various schemes that are available when the farmer wants to claim for money. Fig.7 depicts the interface for the cooperative Society. Based on the type of

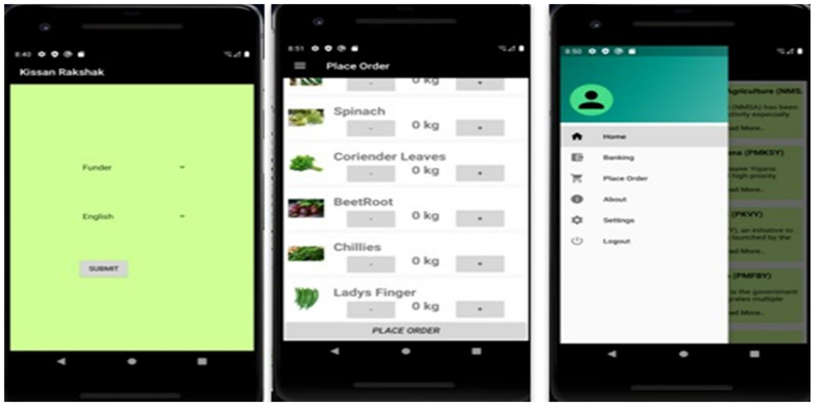


Fig.6 Funder Interface in KissanRakshak application

crop that they are cultivating different amount of money will be sanctioned. They can also help the farmers to claim for insurance if their crops fail due to any natural calamity by helping them upload the picture of their field as a proof. The proposed application also helps the cooperative society to view the number of farmers registered, along with the crop details cultivated by them. They also have the privilege to register the farmers.

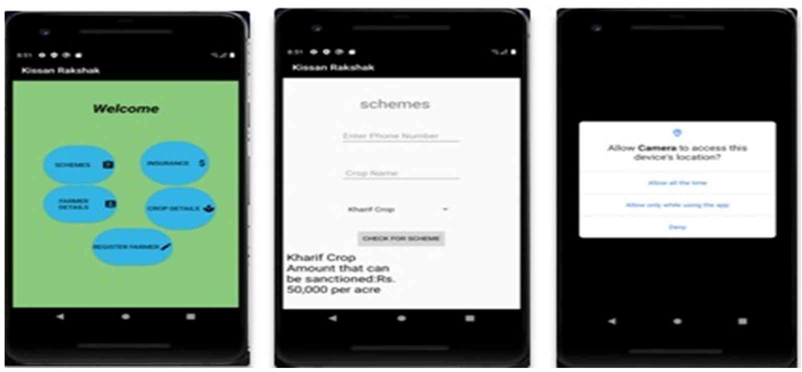


Fig. 7 Interface for Cooperative Society in KissanRakshak Application

### *D. Integrating Blockchain for Transactions*

Blockchain technology promises to facilitate fast, secure, low-cost international payment processing services through the use of encrypted distributed ledgers that provide trusted real time verification of transactions without the need for intermediaries such as correspondent banks and clearing houses. The project makes use of blockchain technology by using the Solidity software, to facilitate a secure transaction between farmer and the funder, thereby bypassing the intermediate dealers making use of cooperative society as the intermediary for any transaction.

## V. Conclusion and Future Scope

We have implemented an android application named 'KisanRakshak', with a great vision i.e., to provide a technological solution that aims to cut down the farmer suicide rate. The most commonly identified causes for farmer's suicide are unpredictable natural calamities, drought, sudden price drops on agricultural products, fail to refund Agri-loans on time due to loss of yields and poverty. Among all these factors, the most prevalent one is the inability to repay the loan amounts due to high interest. The proposed work extends a helping hand to the farmer by raising a donation-based crowd fund and farmers can benefit in their difficult time. The fund for farmers is raised by any donor who wants to contribute as a donation. The funder is also facilitated to buy Agri-products from farmers directly by bypassing intermediate agents and availing the right prices for the crops. Blockchain based secure transaction has been enabled between the funder and the farmer by providing the transparent transactions between them. Farmers are educated about all the possible benefits through various agricultural schemes and policies to empower them. In order to make the application handier to the farmer, we have enabled the local language interface (Kannada-in Karnataka State) in the application. The future work focuses on bringing the application as an effective solution by reaching to the respective authority for deployment of this solution.

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