

# App Proposal

By Sarah Cheung

## Motivation and Need



*A mobile application that allows users to play Tic-Tac-Toe or Connect 4 to donate rice to third world countries, helping alleviate world hunger.*

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Globally, the number of hungry people has decreased considerably since the 2000s. However, approximately 795 million people still struggle with starvation daily for the following main reasons: poverty, war, climate change, insufficient infrastructure, market instability, and food shortage [3]. Several, if not all, of these reasons are interconnected. For example, smallholder farmers in developing countries gain little profit from selling their crops, and they rely on any surplus to sustain themselves until the next harvest season. By the next season, however, most of the farmers' food has either spoiled or run out.

Regarding the need to address poverty, the present urgency of some third-world countries in need of food is extremely high. For instance, "250,000 Yemeni civilians" were recently "classed as being at phase-five 'catastrophe' level, when it comes to food poverty" [2]. The only other country that contains civilians—specifically 25,000—in phase five is South Sudan. Both countries are engaged in conflicts, causing many of their citizens to struggle economically and nutritionally. Considering the staggering amount of malnourished people in Yemen and South Sudan combined, food aid is desperately needed for them to survive.

Furthermore, climate change has caused food shortages in several developing countries. There have been reports of "more undernourished people in areas of the world that are highly exposed to extremes

of climate” [1]. In these past five years, there have been more frequent extreme dry heat spells; rainy seasons have also started earlier or later than usual in some areas. With these extreme changes in climate, “staple crops such as wheat, rice and maize are particularly at risk” [1]. Since these crops are the main, if not only, source of income of many smallholder farmers in impoverished countries, the rates of poverty and hunger have increased drastically. However, these farmers’ ability to adapt to the changing climate is limited by their few immediate available resources. To aid in their survival, outside help is needed to supply them with more drought-resistant crops, amongst other types of assistance.

Game of Rice is designed to deal with the two issues—poverty and food shortage—to help alleviate world hunger. By playing the all-time classic games, Tic-Tac-Toe and Connect 4, on the app, its users can donate rice to impoverished communities. Users can also give drought-resistant seeds to these communities each time they obtain a hundred grains of rice through playing the games.

## References

- [1] Harvey, Fiona, and Karen McVeigh. “Global Hunger Levels Rising Due to Extreme Weather, UN Warns.” The Guardian, Guardian News and Media, 11 Sept. 2018, [www.theguardian.com/environment/2018/sep/11/global-hunger-levels-rising-due-to-extreme-weather-un-warns](http://www.theguardian.com/environment/2018/sep/11/global-hunger-levels-rising-due-to-extreme-weather-un-warns).
- [2] MacMillan, Arthur. “Yemen's Food Crisis 10 Times Worse than South Sudan, Says UN.” The National, The National, 11 Dec. 2018, [www.thenational.ae/world/mena/yemen-s-food-crisis-10-times-worse-than-south-sudan-says-un-1.801300](http://www.thenational.ae/world/mena/yemen-s-food-crisis-10-times-worse-than-south-sudan-says-un-1.801300).
- [3] “What Causes Hunger.” Bread for the World, 9 July 2015, [www.bread.org/what-causes-hunger](http://www.bread.org/what-causes-hunger).

# App Description

## App Name

Game of Rice

## Target Audience:

The target audience is people who enjoy gaming and wish to help alleviate world hunger through it. The age range is from young children to seniors.

## Brief Description

A user can play a game of Tic-Tac-Toe. Every time the user wins, twenty grains of rice are donated; if it is a draw, ten grains are donated; if it is a loss, five grains are donated. Each time the user attains a hundred grains of rice, a drought-resistant seed is given to an impoverished community affected by climate change.

## Key Features


- User can create an account or login with an email and password.
- User's profile section will display:
  - Unique username
  - Total rice donated by the user
  - Number of wins, losses, draws, and games played by the user
- User can play a game of Tic-Tac-Toe or Connect 4
- Each time a game is played, a certain number of grains of rice is donated based on whether the user won, drew, or lost
- Each time the user obtains a hundred grains of rice, a drought-resistant seed is donated
- Customized "welcome back" screen based on user preferences
- Leaderboard (displays the top ten players with the most rice obtained)

## Technology Items

- AdMob
- Firebase (authentication and persistent storage)
- Camera and Photo Library (optional)

## Visual Wireframes

Signup Screen



**Game of Rice**

Email:

Password:


Username:

**SIGN UP**

Already created an account?

**LOGIN**

Login Screen



**Game of Rice**

Email:


Password:

Username:

**LOGIN**

**BACK**

Home Screen




**JDoe90007**  
Total Rice Donated: 1,250  
Games Played: 3  
Wins: 2  
Losses: 1


**TIC TAC RICE**

**LEADERBOARD**

**SIGN OUT**



Tic-Tac-Toe Screen









**JDoe90007**  
Total Rice Donated: 1,250  
Games Played: 3  
Wins: 2  
Losses: 1

X	X	O
O	O	X
X	X	O

**QUIT**

Leaderboard Screen

**Leaderboard**

	<b><u>John Doe</u></b> Total Rice Donated: 1,250
	<b><u>Mary Sue</u></b> Total Rice Donated: 1,150
	<b><u>Jane Doe</u></b> Total Rice Donated: 1,050
	<b><u>May Anne</u></b> Total Rice Donated: 975
	<b><u>Jacob Law</u></b> Total Rice Donated: 825
	<b><u>Bob Miller</u></b> Total Rice Donated: 775

**BACK**