The Pineapple Project

www.root2market.org

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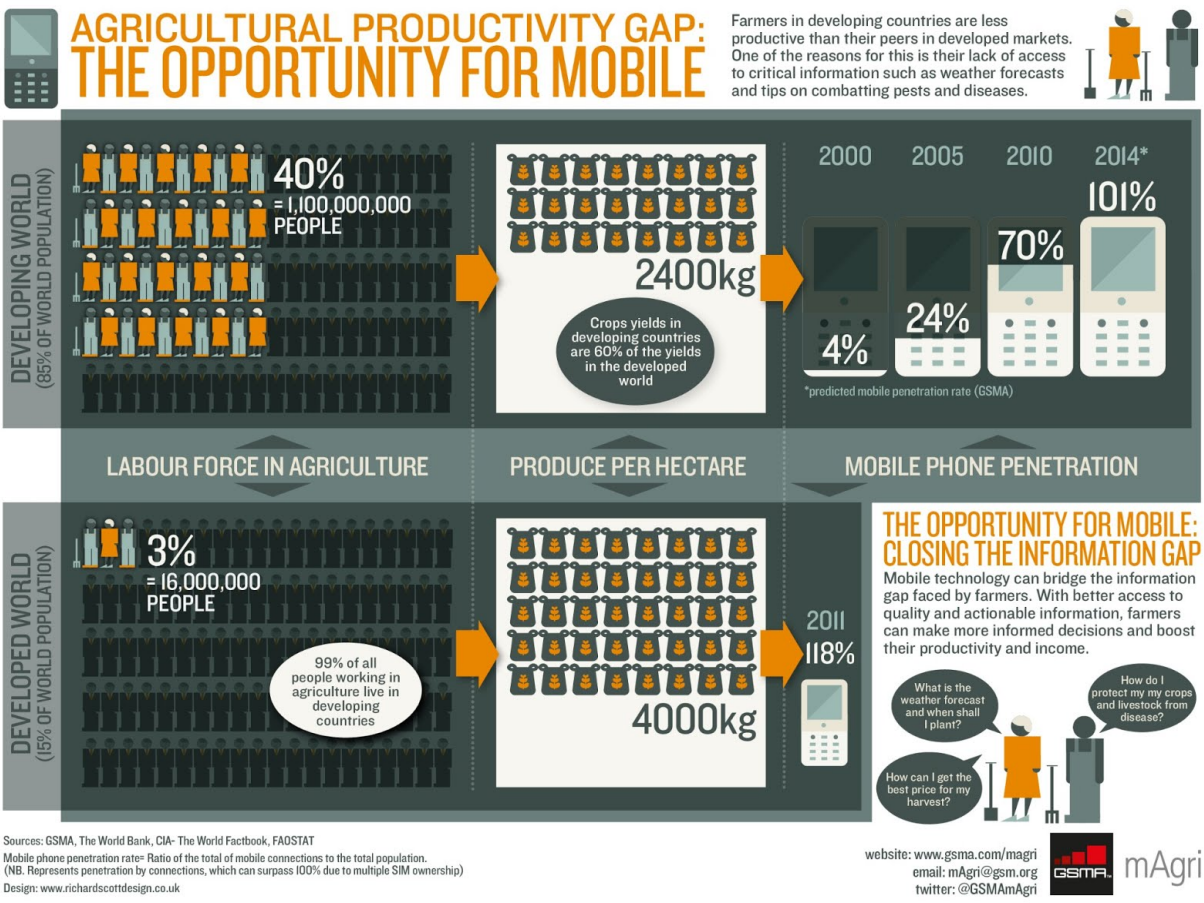
Executive Summary

The Pineapple Project is an open-source community project of the Root2Market organization. The objective is to use technology that is readily available to subsistence farmers in developing nations to improve the productivity and utilization of their land and to improve their livelihoods by increasing the revenue they receive from the crops they are able to sell. To do this, we utilitze public data sources, crowd-sourced data, and locally collected data that is processed by a recommendation engine to provide expert advice to farmers who rarely have access to resources like market advisors and extension services that are readily available to farmers in developed nations.

Problem

Forty percent of the developing world's population is engaged in small-scale farming (World Bank, 2008). These farmers are at a significant disadvantage, compared to farmers in the developed world: they have less access to information (many farmers in the developed world have agricultural extensions to support them and they have far better access to the Internet), they have less information about market conditions, and they have less clout when selling their goods.

However, as noted by the GSMA, the growing number of mobile handsets in the developing world provides access to information that was not available in the past. The following graphic shows that the penetration of mobile handsets in the developing world is expected to exceed 100% within two years. While many of these phones are simple cellular handsets without the broadband data capabilities we have come to take for granted in the industrialized world, they can still provide access to information unavailable previously.

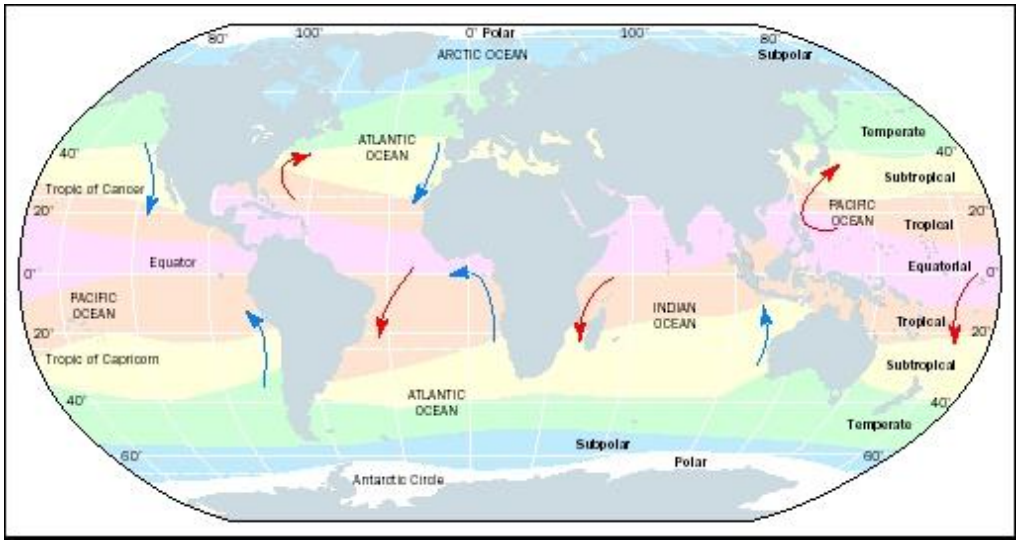


An infographic from the GSMA showing the growth of mobile phone penetration in the developing world. It should exceed 100% within two years.

Project Overview

The objective of the Pineapple Project is to take advantage of the growth in mobile phone availability to help correct the information imbalance for subsistence farmers through a system that can provide information to support planting decisions and improve outcomes when taking the crop to market. The system must be capable of being used in a variety of environments, including the costly, low-bandwidth access available in much of the developing world.

The Pineapple Project is currently targeted at farmers in the equatorial region, as illustrated in the following map, although there is no reason it couldn't also be used in the rest of the world with an expansion of the crop database. The growing conditions data does cover most of the arable landmass of the Earth.



The Pineapple Project is presently focusing on the equatorial regions, highlighted in pink.

Key Partners

The Pineapple Project has worked with a number of teams from around the world over the span of four hackathons in 2012: the International Space Apps Challenge, Global Random Hacks of Kindness (RHoK) in July and December, and Hacking4Hunger. The one partner we have worked with consistently and attempt to coordinate our activities with in order to avoid duplication of effort is the Growers' Nation team in the United Kingdom (http://www.growers-nation.org/).

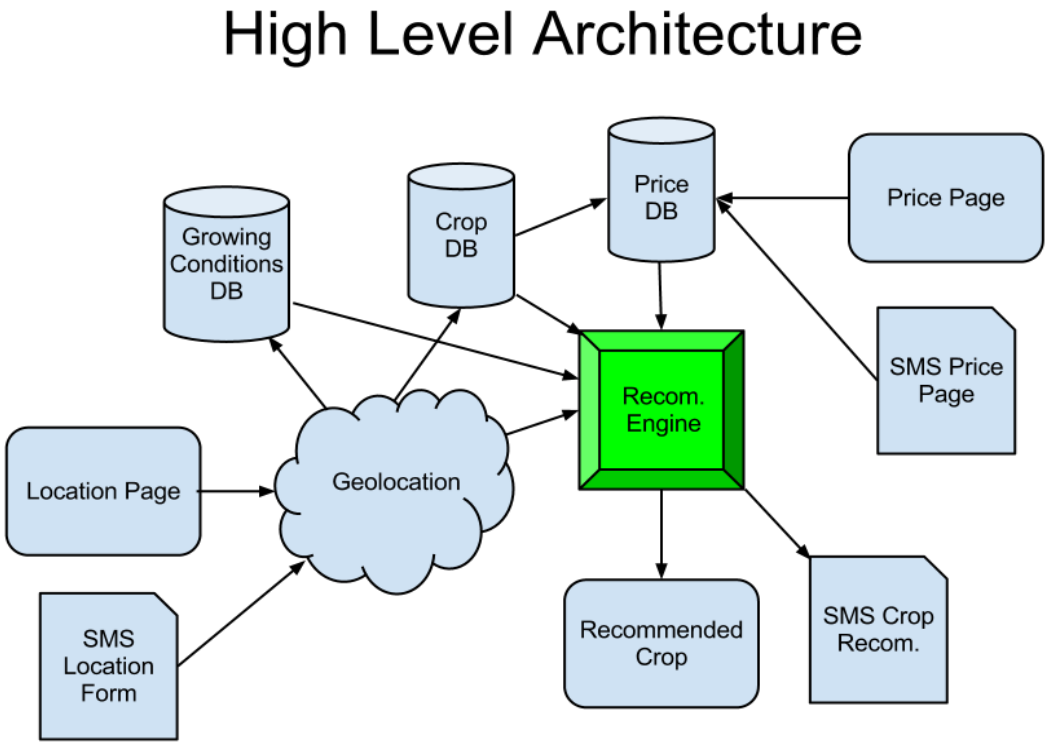
Key Activities

We are currently working toward a pilot of the system in the equatorial region. This is necessary in order to refine the design and prioritize our efforts. For the pilot, we envision a simple crop planting recommendation that will utilize a common cellphone of the type that are widely available in our targeted regions. A farmer involved in the pilot will submit the location they want to cultivate to the system using the cellphone and a Simple Messaging Service (SMS) input page or an Interactive Voice Response (IVR) system. The recommendation engine on the Pineapple Project server will retrieve the geographic location of the farmer's field and use that location to identify the growing conditions for that location at the present time. It then looks up the crop or crops that are appropriate for those conditions.

The next step after the pilot is to incorporate the feedback from the system users and to make the recommendation engine more sophisticated. For example, multiculture (planting multiple crops in the same area) is more appropriate in many equatorial and tropical regions, so the recommendation engine could be improved to recommend mixes of crops to plant. Another difficult, but necessary, element is to take current and projected market conditions into account for the planting recommendation. There also needs to be a pricing model that will assist the farmer with the decision about where and when to take the crop to market and what price to expect.

The interface also needs to be expanded. While there are not a large number of "smart phones" in the developing world at present, they are one of the fastest growing markets for data-enabled phones, especially Android devices. To serve this emerging market, we need to develop apps for the iPhone and Android platforms and a web app. Some work has already been done in this area, but the development needs to be continued and refined.

The following is a block diagram of the Pineapple Project as a complete system.



Block diagram of the completed Pineapple Project.

Key Resources

Personnel

The Pineapple Project has a worldwide community of participants who have participated at one time or another. Most have participated during one of the four hackathons and have not contributed since, but some have continued to participate in between the hackathons. Continuity for the project has been provided by the project lead, Samantha Snabes, and the technical lead, Dan Stormont.

Partnerships

The project partnership with Growers' Nation has been a productive one as we have been able to share research and, in some cases, development efforts.

Support

The Pineapple Project has been provided with resources by Geeks Without Bounds, among others.

Value Proposition

It is our belief that this project will improve the livelihood of subsistence farmers in some of the poorest regions of the world. Obviously, we need to prove that assertion through our pilot and follow-on efforts.

User Segments

Our target users are the subsistence farmers in developing nations in the equatorial regions.

Relationships with Users

We need to establish relationships with a group of pilot users in a nation in our target region. We have made some initial steps in this direction by making contacts with NGO and government-funded groups working in Africa and South America, but we need to seek other partnership opportunities.

Financial Projections

At present, this project is unfunded. All work has been done by volunteers using donated or self-purchased resources.

Projected Cash Flows	Q1	Q2	Q3	Q4
2013				
2014				
2015				
2016				
2017				

References

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