Mwanakuche Farm

Executive Summary

Community Partner
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Background

Mwanakuche Farm is a volunteer-driven organization founded and led by the Somali-Bantu community of the Greater Pittsburgh area. They are committed to fostering community through their two agricultural programs: Mwanakuche Community Garden, situated in Pittsburgh's Perry South neighborhood, and the Mwanakuche Farm, located in Mercer, PA.

While managing to operate with only 2 full-time employees and a handful of volunteers, they are able to provide meat and produce to approximately 1,500 to 2,000 people each year. Onsite, the farm operates using informal communication methods, such as WhatsApp, TikTok, or word of mouth. They also have very little technological infrastructure, with a single laptop located in the Office and limited wifi coverage.

Project Description

Project Opportunity

Currently, all business operations information is confined to a single Excel file, managed by a single person: Abdul Chirambo. This limitation arises from challenges in the staff's technological proficiency, low volunteer retention due to physical work demands and compounded by multiple language barriers amongst volunteers, including a lack of literacy. As a result, without a universally shared communication method, there is no standardized means for capturing and tracking data.

The aim of our project is to establish an information capturing and management system, enabling Abdul to direct his attention toward more significant tasks that cannot be automated. These might include: applying for grants, training community members to be self-sustainable, and expanding the program's reach to engagemore of the community

Project Vision

To address the central issue of inconsistent or lack of data capturing, we developed an Icon-based Google Form to track completed tasks and a Google Looker Studio responsive dashboard that visualizes collected data. Our system operates as described: First, volunteers will use their mobile devices to scan QR code signs located around the farm. The QR code will open the Google Form that asks questions about completed tasks during their shift. The responses are automatically converted into a readable format and placed in a Google

Spreadsheet. Lastly, a Google Looker Studio dashboard is generated that visualizes response data and automatically updates with each new input.

Project Outcomes

Our project's main outcome is the establishment of a standardized information capturing and management system. We achieved this through an Icon-based Google Form for data collection, tracking tasks based on a user's location, and a responsive Google Looker Studio dashboard for data visualization. In order to ensure shared system capacity, we incorporated feedback from Abdul and volunteers during the user testing of our system. As a result, communication regarding volunteer tasks is no longer reliant on informal methods, such as word-of-mouth or WhatsApp. We have empowered all volunteers to contribute to the information collection process, increasing data accuracy and efficiency. Lastly, enabled Abdul to access real-time farm updates, streamlining volunteer management and optimizing farm operations.

Project Deliverables

Our final deliverables include: a Google Form for volunteer task tracking, Google Sheets containing raw and cleaned response data, a folder of user-uploaded images related to repairs, and a Google Looker Studio data dashboard that visualizes captured information. Documentation includes PDFs of physical signs with QR codes, user guides for the Google Form (video and written), and technical documentation for data flows of our IPaaS Platform (API keys, logins, data dictionary, dummy data for testing, and architectural diagrams).

Recommendations

In order to preserve the usefulness and sustainability of our system, we are recommending that Mwanakuche Farm fully convert to using our Google Form as the only method for communicating completed tasks as well as hire a contractor to maintain the technical aspect of the system (Google Form, Google Looker Studio, and make.com) on a bi-yearly basis. This will ensure there is no disjointed or inaccurate data and protect against bugs or other technical issues.

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Student Consulting Team

Tanner Balluff served as the Technical Lead. He is a third-year student studying Information Systems, Cybersecurity, and International Relations and will start the accelerated Master of Information Security Policy & Management Program at Heinz College in the Fall. This summer, he is interning as a Software Development Engineer at Amazon's Seattle Headquarters.

Mimi Chuang served as the Communications Lead. She is a third-year student studying Information Systems, Art, and Environmental and Sustainability Studies. This summer, she is interning at Biomotivate, a local Pittsburgh startup in behavioral health technology solutions.

Kelli Kuramoto served as the Design Lead. She is a fourth-year student studying Information Systems with an Additional Major in Human Computer Interaction. Post graduation, she plans on moving back home, and working as a Business Technology Consultant in San Francisco.