Greenhouse Scanning App

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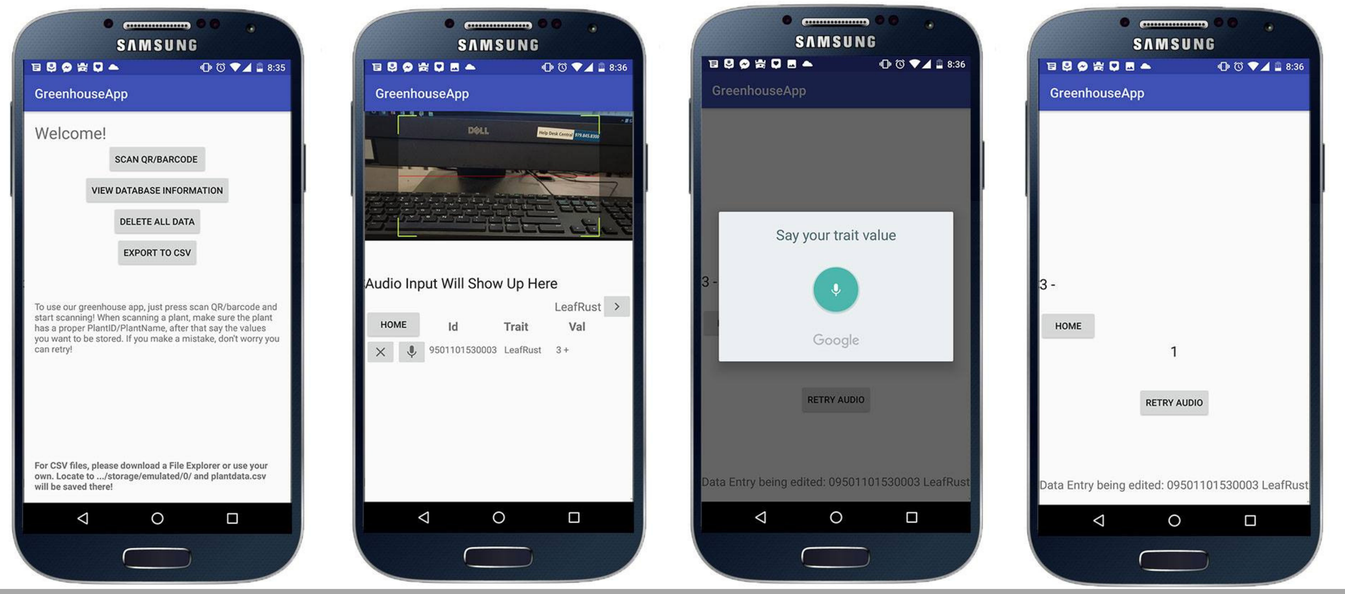
Sponsored by NSF & Gates Foundation
A one hand help for breeder initiative project

COMPUTER SCIENCE & ENGINEERING
TEXAS A&M UNIVERSITY

Current Field Implementation

Our Application



Pick trait & Scan Record your value Confirm/Verify

Project Overview

Our project was created to help out plant breeders. As shown in the picture, these breeders work in 3 man teams to record plant information. For each plot out on the field, there is a T post marker that displays the genetic make up (be it barcode or QR) of the plants. One person would analyse that T post marker, another person would inspect the plant, and the last person would jot down the notes on paper. However, the people in these fields would have to go back to their labs to transcribe their information and record it on a computer. This is incredibly time consuming and painful since the information is relayed from paper to lab. The process is not repeatable and it takes up much of the breeder's time. Our application simplifies this process in many ways

Innovation

Our process was simple, reduce the three man teams into one man teams. Due to the location of these crops, we had to make our app work locally. A local database is hooked up with each app in that way no internet is needed to take information. Our built-in CSV writer takes care of digitizing your information with a click of a button. A file is created and you can simply email it to yourself whenever you want. Now everyone can record information and digitize it, saving time from round trips to the lab and reducing those three man teams.

Build

Our build was created by Android Studios. The ZXing library provided us with barcode and QR scanning. Google Voice API allows breeders to record with their voice, while SQLite provided onsite database functionality. Each one of these were carefully programmed to take consideration of the breeders' wants, but at the same time being intuitive and easy to use. Our app can be used within plots of fields or even inside a greenhouse with a bunch of plants.

Testing

Throughout the application development, we would pass iterations of our app to one of the initiative leaders Trevor Rife. Trevor and his group of experts would test the app, both outside on the plots and inside within the greenhouse. He would give us user feedback and we would adjust the app accordingly. Manual testing was done by our team and by Trevor as well.