



Digitizing on-field processes to enable sustainable forestry

Background

NRD (Natural Resources Development S.A.), a Lichtenstein based company that specializes in sustainable forest management and its practices primarily in the African subcontinent. NRD needed to digitize all their sustainable forest management activities and struck a strategic partnership with Vanenburg software - A WaveMaker certified premier EU partner headquartered in the Netherlands. They are an independent software and services organization who deliver mobile apps and cloud solutions for both large and small enterprises

Problem description

NRD is the chosen body in the EU that works with Liberia to curb illegal logging in the country. They developed a legal logging system to control, verify and license legal timber that is exported to the EU and other parts of the world. Additionally, they were responsible for preserving forests and enable sustainable forestry. As a part of this larger green agenda they had invested in 440,000 hectares of land in Liberia and Brazil. Each hectare and each tree inside it are identified using unique barcodes determined by their GPS location, diameter, log time, height etc., such barcodes are centrally maintained by the department of forestry in a cloud based portal from which 3-5 fully grown trees are selected for logging. Logging selection is based on considerations like best quality, CO2 neutral nature etc., This way logging choices are transparent, trackable and in compliance with all rules/regulations of the governing bodies.

The technical challenge for Vanenburg software was to provide a solution that digitizes NRD's sustainable forestry process which tracked their forest operations, financial management, logistics and fleet management. The solution needed to be mobile for their officers on the field in the remote parts of Liberia tagging each tree and should support offline capability to later sync with a cloud based portal. In addition, it needed to provide confirmation on the logging permits of the governing body to ensure chain of custody and transparency in the process.

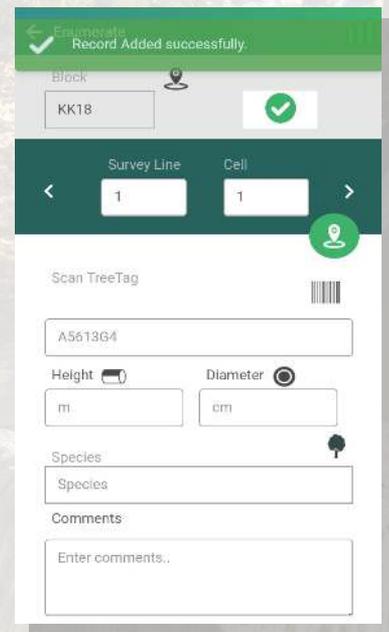
WaveMaker value-adds

Vanenburg software used WaveMaker Rapid platform to build a mobile application for NRD.

Templates and themes

The HTML5 based UI themes and widgets, which WaveMaker offered out-of-the-box helped create an easy to use interface that could be operated by the field officers on any smart mobile device. WaveMaker platform enabled the app to use mobile device functions like GPS-location. This allowed easy tagging of trees and capture of data points like log time, diameter, height etc on offline tables built-in the application.

Data Capture screen on Field officers device



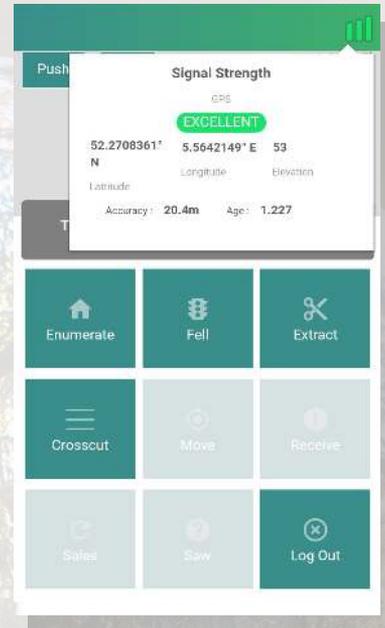
The screenshot shows a mobile application interface for data capture. At the top, a green banner displays a checkmark and the text "Record Added successfully". Below this, a "Block" field contains the value "KK18" and a green checkmark icon. The interface features a dark green header with "Survey Line" and "Cell" fields, both containing the value "1". A "Scan TreeTag" section includes a barcode scanner icon and a text input field with the value "A5613G4". Below this are "Height" and "Diameter" fields, each with a unit selector (m and cm respectively). A "Species" field is also present, followed by a "Comments" field with the placeholder text "Enter comments..".

Offline functionality

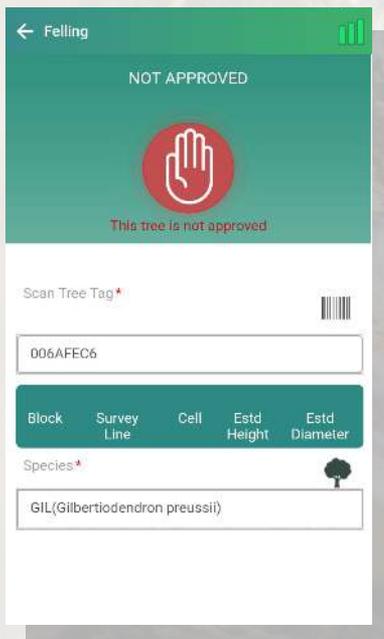
The mobile application had to work completely offline when the officers carry their smartphone to the field. The functionality stored captured data on the local device and later updated the same to a cloud based platform, when network was available.

Since this is a data driven application, offline-online syncing had to happen seamlessly so that the right information is always available for its users. The whole syncing process was designed to operate with minimal network overheads, so that , even on a weak network, several thousands of data records can be transferred between the device and the cloud based platform, quickly and with minimal latency.

GPS location screen on Mobile device.



Tree logging approval screen on field officer's device



Real time tracking

The approval for the logging could be tracked on the application and could be seen in real time. Using the app, NRD can track, control and manage sustainable forest operations in real-time.

The mobile application, that Vanenburg developed using WaveMaker helped Natural Resources Development (NRD) successfully digitize their sustainable forest management efforts.