Objectives

Develop and disseminate resources for automating the process of measuring logs in cross-section, through augmented reality technology and machine learning in order to promote sustainable standards of forest management.

Project description

An application that can identify the total volume, geolocation, number of units, diameter and volume of piles of logs in cross section, and generate online or offline reports from this data in real time through augmented reality and machine learning technologies.

Methodology Summary

The traditional measurement of logs is done manually, using the cylindrical volume formula as a basis. Designed to automate the traditional process, the Pixlog application identifies in real time the plane surface common to all logs when the user points the cell phone camera perpendicular to the pile, then the diameters unit represented by perfect circles are projected, and a total volume information is generated in report format. In order to detect logs and complete the scaling process using the application, there is no need for internet, the application has geolocation, which allows you to inform the location where the measurement was performed.

Expected results

Decision making through data, and classification of log diameters will be identified easily and assertively. Cooperate with the inspection or any fiscal control, adding to the legal trade of wood, identifying the exact extraction location of raw material from the forest.

Why it is relevant to the forest products industries

Log counting is a meticulous and dangerous process, our goal is to bring more safety, precision, and agility to the lumber/forestry sector.

What makes you innovative

Through Augmented Reality, we created an innovative app that reads and measures digitally, mobile online or offline. Calculating the wood volume and measurement location.

How it fits with the selected theme

We perform visual recognition of logs stored in high volume. Safely, improving logistics management, and adding to the legalized trade of wood logs.

Direct and indirect links to each of the UN SDGs

Direct:

9 - Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.
In the industrial sector, we added a high-tech product accessible to rural areas, with the possibility of working offline, using only the cell phone. We also promote the inclusion of small producers in a competitive market, bringing more security to their employees, and agility in their processes.
Indirect:
8 - Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
We operate in the green economy, working and encouraging the extraction of controlled natural resources, such as reforestation and in accordance with the regulation of environmental agencies, thus preventing the ecological scarcity of wood, aiming at the sustainable development of the wood industry without degrading the environment.
15 - Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

We currently work in the forestry area to promote the sustainable management of wood production, for now we only work with counting and identification only of reforestation wood.

We've already started working with federal universities (UFPR, FUPEF & University of Viçosa) to identify native and exoctic wood that is illegally extracted (they offer databases of the specimen for our visual computing algorithm) , thus cooperating with the regulation we'll be promoting the stimulus of sustainable forest management.