

## Growth Analysis of Mahogany Seeds Using Android Based Seed Measurement Applications

**Muhammad Kholil Asy'ari<sup>1</sup>, Dyah Ayu Sri Hartanti<sup>2</sup>, Moh Anshori Aris Widya<sup>3</sup>**

<sup>1,3</sup>Informatic, Universitas KH. A. Wahab Hasbullah

<sup>2</sup>Agricultural and Biosystems Engineering, Universitas KH. A. Wahab Hasbullah

Email: resseck17@gmail.com

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### ABSTRACT

*This mahogany seed measurement application is one of the systems used to simplify the analysis process for mahogany seeds. This application measurement is used to determine the development of mahogany seedlings when it's time to move. This research on making a simple application for measuring mahogany seeds which is not widely known by the wider community which has the potential to become one of the applications that are needed by Mahogany Farmers. This simple application receives an input in the form of data, then it is determined for various reasons so that these seeds are feasible to be moved to a more adequate place. The criteria for relocating were the small number of dead mahogany seedlings with a certain age, the height of the mahogany seeds and the good condition of the mahogany seeds. This research was conducted to make it easier for mahogany seed farmers to analyze the development or growth of mahogany seedlings and to make it more practical to use.*

**Keywords:** Mahogany Trees; Mahogany Tree Seeds; Growth Analysis Applications

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### INTRODUCTION

In Indonesia mahogany is called mahagoni, maoni or moni. The mahogany plant is a tree that produces hardwood which is usually used by some people to make household furniture and carved items. Mahogany trees can grow wild in teak forests or other places close to the beach and are usually planted on the side of the road as protective trees. This plant comes from the West Indies and can grow well when planted in brackish sand close to the beach (Hariono & Fajriyah, 2021). This annual tree is 5-25 meters high, has a tap root, round trunk, many branches and gummy wood. Mahogany tree leaves include compound, even-pinnate leaves, the leaf blade is oval, the tip and base are pointed, the leaf edge is flat, the shape of the leaf spine is pinnate and can reach a length of 3-15 centimeters (Nursakinah, 2017).

Mahogany is a wood that is easy to cultivate because it can grow in various places and various types of soil. Generally it can grow on rather clay soil with an altitude of 1000 meters above sea level. Many studies have been conducted on the mahogany plant, in which the genetic diversity of mahogany is quite high. Genetic diversity is quite high causing a high phenotype so it is necessary to do morphological and physiological analysis (Azzahra, 2018).

Creating an Android-based application for growing mahogany seeds using Framework 7 which supports programming languages, namely javascript and HTML. Android uses the XML language for its layout scripting. With the above background, to compensate for the acceleration of digitization, it is necessary to create a mahaoni tree nursery application using Android to make it easier for farmers to quickly nurseries. The next stage after the presentation of the material is direct practice (Yaqin et al., 2022). By using an Android-based application, it is intended to make it easier for a mahogany entrepreneur to determine the growing period for the seedlings.

Android is an operating system for Linux-based mobile devices that provides an operating system, middleware, and applications. Android provides an open platform for developers to create their applications. Initially, Google Inc. bought Android Inc. which is a newcomer that makes software for cellphones or smartphones. Android is a new generation of mobile platform that provides development according to expectations. The underlying operating system Android is licensed under the GNU, General Public License version 2 (GPLv2), often known as a "copyleft" license where any third party

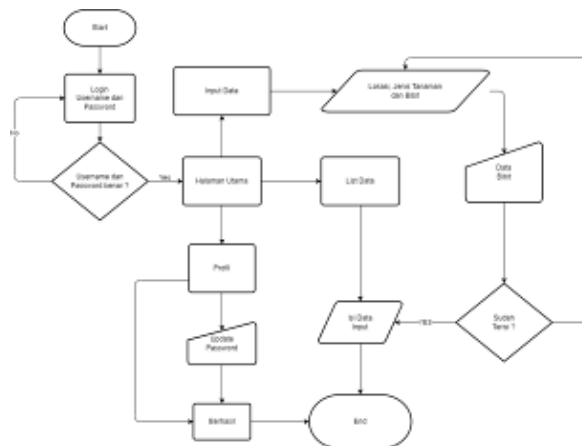
improvements must continue to fail under the terms. Android is distributed under the Apache Software license (ASL/Apache2), which allows for second and subsequent distributions (Nurhidayati et al., 2021)

However, this operating system does so by prioritizing core apps built in-house without looking at the huge potential of third-party apps. As a result, there are limitations for third-party applications in obtaining native data from the phone, inter-process communication, and limitations in distributing third-party applications to their platforms.

## METHOD

The variable that will be used in this study is mahogany trees which have very good prospects for growth and development, and have the feasibility of being moved so that they can grow and develop optimally. This is mainly due to the abundance of benefits of the mahogany tree. For data collection after the application has been successfully made, namely using quantitative methods. And the research location was determined purposively in a community forest area in Jombang, East Java, which was carrying out measurement activities for mahogany trees.

In this study using descriptive data analysis method. Data obtained by observing the measurement of seedlings on mahogany trees that have been carried out so far. The data collected is in the form of wood size (length and diameter). Then the data that has been collected is entered into the Android-based nursery growth application, and the data itself is in the form of a tree code, tree height, leaf width and tree diameter. The design of the android application system that will be made is using a flowchart diagram :



**Figure 1.** System flowchart

- Start (where the program starts and will enter the login menu and enter by entering your username and password) then redirected to the main page.
- Then you will be redirected to a menu page consisting of:
  - Home page  
Contains application guidelines and becomes the main page after entering / logging in.
  - Data input  
Contains user measurement data which contains the location of the garden, the type of plant, how many tree seeds and also the characteristics of the seed in the form (height, leaf width and tree diameter).
  - List Data  
Contains a set of data that has been input by the user from the measurement results and can also be known from the user's measurement history.
  - Profile
  - Log out

## RESULT AND DISCUSSION

### Result

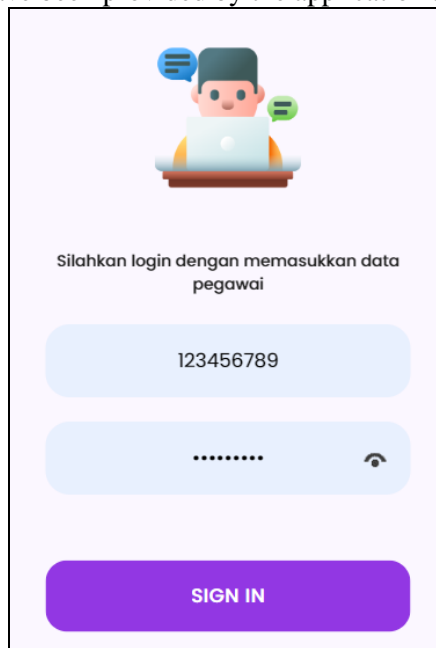
After conducting the research, the results and discussion of the Mahoni Seed Growth Analysis Application Using The Android-Based Seed Measurement Application are obtained to facilitate data

collection and time efficiency in the field. Thus, extension workers can record trees with an easier and faster system.

### Discussion

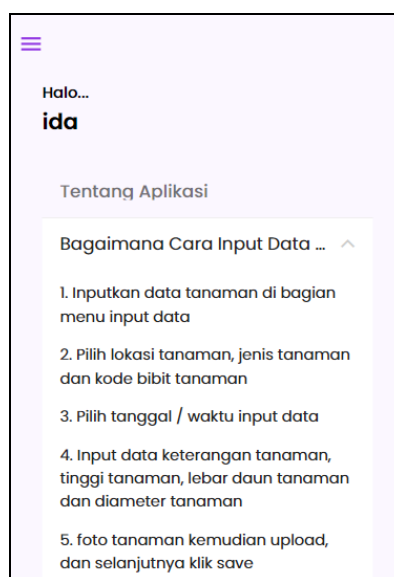
Each application has several menus and their respective functions, as follows a description of the menus and their functions:

- View the Login Page  
The Login page is a page where all users verify to be able to enter the menu page. The username and password have been provided by the application admin.



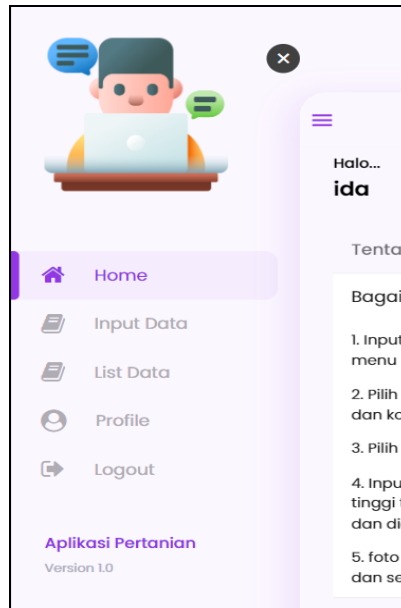
**Figure 2.** View the Login Page

- Main Page  
After successfully logging in, the user will be directed to the main page. The main page contains the menu button, about the application which contains guidelines for filling out the application.



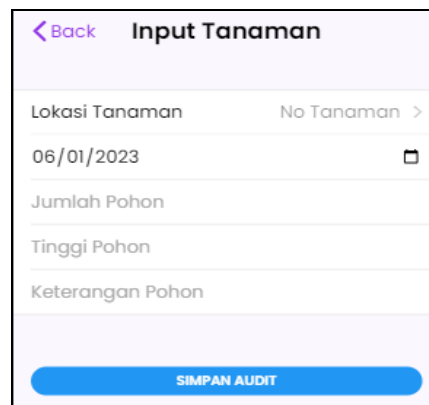
**Figure 3.** Main Page

- Menu Page  
The menu page contains the home menu, data input menu, data list menu, profile menu and logout button.



**Figure 4.** Menu Page

- Data Input page  
The data input page is the page where all users enter measured data. Includes location, types of plants planted, number of seeds planted and the characteristics of each seed in the form of height, width and diameter of the tree.



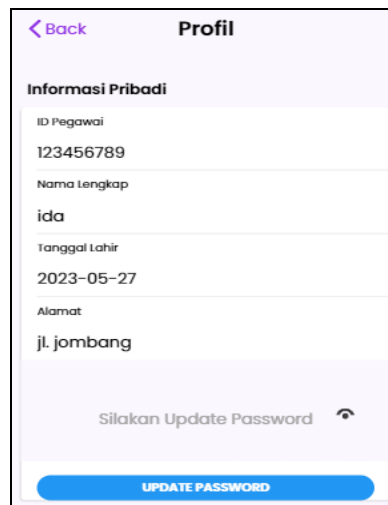
**Figure 5.** Data Input Page

- Data List page  
The data list page is a page containing all the data that has been input by all users, on this page all users can find out the tree data that has been measured. If we choose location A, location A will exit, then click on that location to find out what plants are in that location and how many seeds are planted and the progress of each seed.



**Figure 6.** Data List Page

- Profile page  
This page contains user biodata, which includes parent number, name, date of birth and address. In the update password section, it is used to change the previous password, after entering the new password, then click update password.



**Figure 7.** Profile Page

## CONCLUSION

Based on the results of research on the application of Growth Analysis of Mahogany Seeds Using Android Based Seed Measurement Applications, it can be concluded : With this application, it is hoped that users can make it easier to collect data only by doing it on an Android phone. of course there are still many shortcomings and improvements so that it still needs further development

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