

Mobile application for the care and monitoring of plants at home “Applantar”**Aplicación móvil para el cuidado y seguimiento de plantas en el hogar “Applantar”**

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Abstract

The objective of this project is to promote a more sustainable and environmentally conscious lifestyle through the implementation of modern technologies and a user-friendly interface. This mobile application aims to facilitate plant care and make it accessible to everyone, regardless of their level of gardening experience. This article presents the development and functioning of this plant monitoring application, outlining its key features and the technology used in its creation. By providing an overview of this plant monitoring application, we hope to inspire more people to connect with nature and enjoy the benefits that plants can bring to their lives. Additionally, the application allows users to keep track of plant care, including relevant information such as the plant type, specific care instructions, watering and fertilization dates, among other important data.

Application, Plants, Monitoring, Users

Resumen

El objetivo de este proyecto es promover un estilo de vida más sostenible y consciente del medio ambiente, a través de la implementación de tecnologías modernas y una interfaz amigable, ya que esta aplicación para dispositivos móviles busca facilitar el cuidado de las plantas y hacerlo accesible para todos, sin importar su nivel de experiencia en jardinería. En este artículo, se presenta el desarrollo y funcionamiento de esta aplicación de monitoreo de plantas. Estableciendo las funcionalidades clave que ofrece, así como la tecnología utilizada en su creación. Al proporcionar una visión general de esta aplicación de monitoreo de plantas, esperamos inspirar a más personas a conectarse con la naturaleza y disfrutar de los beneficios que las plantas pueden aportar a sus vidas, además de llevar un control del cuidado de estas, incluyendo información relevante como el tipo de planta, sus cuidados específicos, fechas de riego y fertilización, entre otros datos importantes.

Aplicación, Plantas, Monitoreo, Usuarios

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Introduction

We currently live in a society where mobile and web applications are very important in our daily lives. We increasingly use new technologies, especially mobile phones, to facilitate our daily lives (instant messaging, GPS, email, etc.). All these services have been a logical evolution of the Internet (Jiménez, 2016).

This application, designed with a user-friendly interface, offers users a series of functionalities that will facilitate plant tracking and allow them to interact with other gardening enthusiasts.

The first outstanding feature of this application is the ability to register and modify user information. This will allow each individual to personalise their experience on the application and tailor it to their needs and preferences.

Once registered, the customer will be able to use the application to register the flowers and plants they have in their home. This functionality will allow them to keep detailed track of each one of them, including relevant information such as the type of plant, its specific care, watering and fertilisation dates, among other important data.

In addition, the application encourages interaction between users by providing the option to create virtual gardens. Once a user has created his or her garden, he or she can connect and share experiences with other users who are also part of the same garden. This virtual community will allow users to exchange tips, ideas and experiences related to plant care, thus creating a learning space.

Development

The SCRUM methodology was applied in the development of the plant control and monitoring application to ensure an efficient and successful implementation.

Scrum is one of the most widely used methodologies, not only in the area of software development, but also in fields such as manufacturing, education, among others (Rodríguez & Vicente, 2015).

The Scrum activities that were carried out are detailed below:

Project planning: In this stage, the project objectives were defined and the Product Backlog was established, which is a list of all the functionalities and requirements that must be implemented in the application. Priorities will be determined and goals will be set for each iteration.

Daily Scrums: Daily meetings of short duration were held so that the development team could synchronise and share their progress, identify possible obstacles and plan the day's tasks. This allowed for fluid communication.

Sprint Planning: Prior to the start of each sprint, a planning meeting was held to select the Product Backlog features and tasks to be addressed in that sprint.

Iterative development: Development was carried out in short iterations called sprints, usually lasting two to four weeks. During each sprint, the team worked on the implementation of selected features.

Reviews and retrospectives: At the end of each sprint, a review meeting was held in which the completed work was presented to the team and stakeholders for feedback.

Continuous delivery: As features were completed, partial deliveries of the product were made to get early feedback and allow users to use the product.

Applying the Scrum methodology in the development of the plant control and monitoring application allowed for efficient project management, ensuring timely delivery of functionality and user satisfaction.

Figure 1 shows the user registration, by entering their email address and a password, which must include a number, a capital letter, and at least 8 characters.



Figure 1 User registration screen
Source: Own Elaboration

Figure 2 shows the login interface where users must access the application using their email address and previously registered password.



Figure 2 Login screen
Source: Own Elaboration

Once the application has started, users can update their information, including their full name, date of birth and whether they need to be a public or private user, the first user can interact with other users of the application and the private user will only have access to their own information.



Figure 3 Profile information editing screen
Source: Own Elaboration

Figure 4 shows a search engine where the user can search for the plant he/she wishes to register for monitoring.

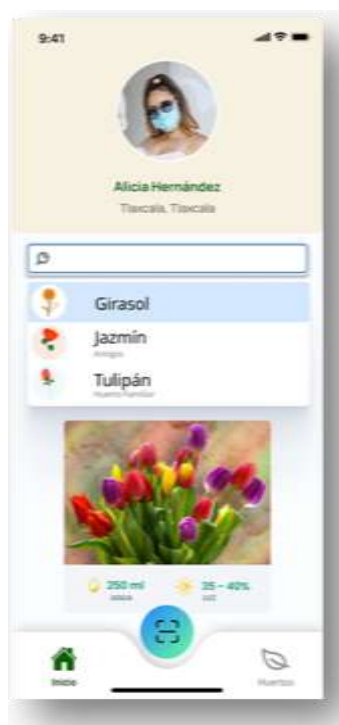


Figure 4 Plant search screens
Source: Own Elaboration

If it does not exist, it can be added, adding a scientific name, common name, temperature, amount of fertiliser per plant, a nickname, amount of water, days of irrigation, and the orchard to which it belongs (see figure 5).



Figure 5 Plant registration screens

Source: Own Elaboration

Family gardens can be created by indicating the name, description, adding an image that distinguishes it, selecting whether it will be public or private, or even seeing which plants have been registered by friends (see Figure 6).



Figure 6 Orchard registration screen

Source: Own Elaboration

Once the garden has been registered, it can be viewed according to whether it is public or private. If it is private, only the user who created it can view it, and if it is public, other registered users located nearby can view it.

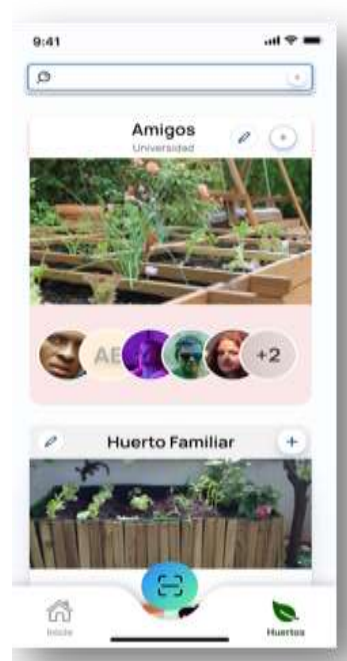


Figure 7 Orchards visualisation screen.

Source: Own Elaboration

Results

The development of the plant monitoring application represents a significant advance towards the optimisation of plant care in domestic environments.

The aim is for the application to be a tool for users to improve the care of their plants thanks to the notifications and reminders that will be programmed into the application, such as watering or fertilising plants, keeping track of their growth and health, and thanks to the creation of gardens, it will be possible to share information about the plants, including advice and recommendations from other users.

It should be noted that the interfaces have been evaluated by people caring for plants at home and have been accepted and given feedback by real users of different ages in the range of 20-50 years.

Conclusions

The project can not only be applied to people with plants at home, but can also be applied to growers. On the other hand, thanks to the use of the chosen tools it is possible to have a higher scalability of the app, in case it is required. In conclusion, the development of the plant monitoring app has been a significant step towards the optimisation of plant care in domestic environments. Through this initiative, it has been possible to provide users with an accessible and effective tool to monitor and maintain the well-being of their plants.

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