ABSTRACT

Application Design For Android-Based Hydrostatics And Fluid Dynamics Calculations

Yarda Paskibrata Gustira[1], Prof. Dr . Frederik J. Putuhena [2], Hendi Hermawan, S.T.,M.TI [2]

[1]   *Student of Civil Engineering Department, Universitas Pembangunan Jaya*
[2]   *Lecturer of Civil Engineering Department, Universitas Pembangunan Jaya*

In the era of globalization, the development of technology is currently growing rapidly. The development of this technology is very helpful in various fields, especially in the field of civil engineering in the calculation process of construction planning. The level of difficulty in calculating construction planning varies for several people. So, efforts are needed to shorten the time of the calculation process by utilizing existing technology (Swastika & Supratman, 2020).

Therefore, the author plans to make a simple application of the principles of hydrostatics and fluid mechanics, such as calculations on hydrostatic forces, Archimedes principle, Pascal's law, discharge calculations, continuity equations, Reynolds number, Bernoullli's principle, Torricelli's law, and open channel flow in the form of an application-based android.

This application aims to raise the effectiveness of these calculations by approaching the method of utilizing Android-based smartphones. The making of this application used Android Studio software and Visual Studio Code. The formula reference is obtained from a book made by Prof. Dr. Ir. Suripin, M.Eng with the title "Fluid Mechanics and Open Channel Hydraulics for Civil Engineering" in 2020. The Hydro Assist application can be used by the commoners, students, and contractors. User satisfaction of this application is measured by analysis of Beta Testing, Black Box and White Box. The results of the analysis obtained an error value below 1%. It shows that the Hydro Assist application is feasible to use. Hopefully in the future, this application can be used on various devices other than Android.

Keywords :
Libraries
Publication Years   : Application, Smart Phone, Analysis, Effectiveness