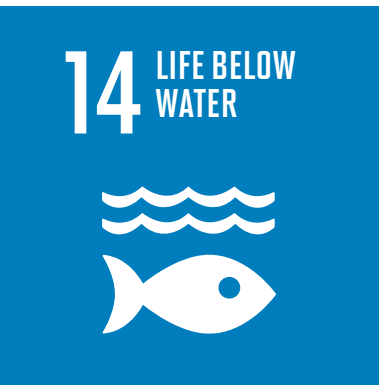
SUSTAINABLE DEVELOPMENT GOALS



Concrete cracking control in underwater marine structures using basalt fiber

Authors: C Quispe; D Lino; J Rodríguez; A. Hinostroza

Abstract: The construction of coastal ports requires the use of materials that meet the demands of the marine environment, to prevent underwater concrete structures from cracking and spalling easily; basalt fiber is used to delay the expansion of concrete and prevent the formation of cracks. This research studies the behavior of concrete for prefabricated piles with Portland Cement Type I and basalt fibers added in 0.1%, 0.3% and 0.6%; the results indicate that the fiber is suitable for concrete, the slump decreases, the compressive strength increases for specimens cured in tap water and sea water, the relationship between resistances does not vary, and the depth of carbonation decreases.

Keywords: Concrete cracking; Underwater; Marine structures; Fiber

Conferencia 4th International Conference on Building Materials and Materials Engineering Páginas1-8

https://doi.org/10.1088/1757-899X/1054/1/012008

Cybersecurity architecture functional model for cyber risk reduction in IoT based wearable devices

Authors: Giancarlo Gómez; Enrique Espina; Jimmy Armas-Aguirre; Juan Manuel Madrid Molina

Abstract: In this paper, we propose a functional model for the implementation of devices that use the Internet of Things (IoT). In recent years, the number of devices connected to the internet per person has increased from 0.08 in 2003 to a total of 6.58 in 2020, suggesting an increase of 8,225% in 7 years. The proposal includes a functional IoT model of a cybersecurity architecture by including components to ensure compliance with the proposed controls within a cybersecurity framework to detect cyber threats in IoT-based wearable devices. The proposal focuses on reducing the number of vulnerabilities present in IoT devices since, on average, 57% of these devices are vulnerable to attacks. The model has a 3-layer structure: business, applications, and technology, where components such as policies, services and nodes are described accordingly. The validation was done through a simulated environment of a system for the control and monitoring of pregnant women using wearable devices. The results show reductions of the probability index and the impact of risks by 14.95% and 6.81% respectively.

Keywords: Author Keywords: Cybersecurity Architecture; Internet of Things; cyber risk reduction; Framework; Security; wearable devices

Congreso Internacional de Innovación y Tendencias en Ingeniería (CONIITI), 2021, pp. 1-4,

https://doi.org/10.1109/CONIITI53815.2021.9619624