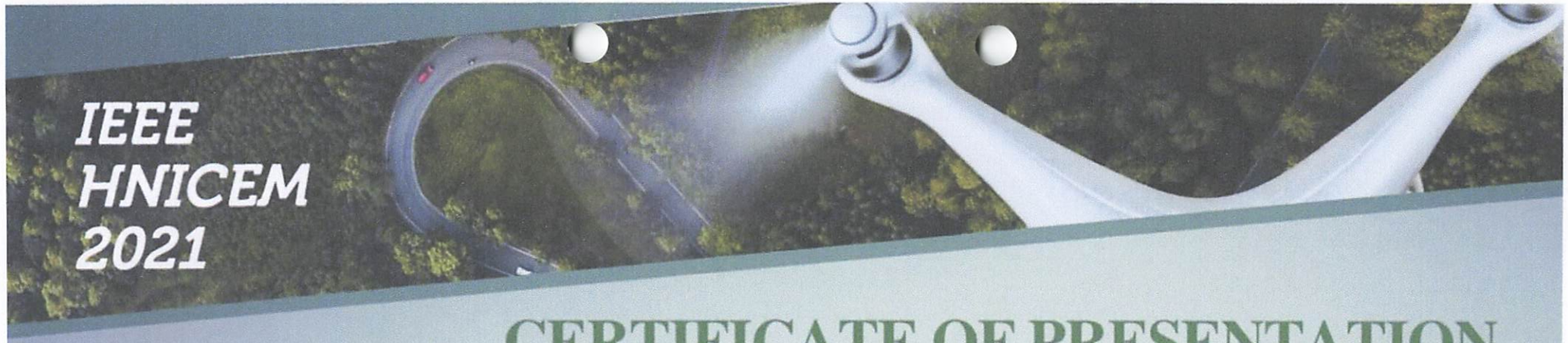

CERTIFICATE OF PRESENTATION

This certificate is proudly presented to

Robert R. Bacarro, Vrian Jay V. Ylaya, Vicente Z. Delante and Ryan Rhay P. Vicerra

Surigao State College of Technology, De La Salle University

who have participated and successfully completed their presentation entitled

Analysis of Water Leaking Pipes Using Impulse Radar: A Case Study in Surigao City, SDN Philippines

in the **13th International Conference on Humanoid, Nanotechnology, Information Technology, Communication and Control, Environment, and Management** (HNICEM 2021).

Full Online Conference
Manila, Philippines
November 28-30, 2021

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Analysis of Water Leaking Pipes using Impulse Radar: A Case Study in Surigao City, SDN Philippines

Publisher: IEEE

Robert R. Bacarro ; Vrian Jay V. Ylaya ; Ryan Rhay P. Vicerra ; Vicente Z. Delante All Authors

Abstract: Water distribution and transportation are carried out via subsurface plastic and metal pipelines. This study aims to determine the position of leaky pipes and discriminat... **View more**

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Abstract:
Water distribution and transportation are carried out via subsurface plastic and metal pipelines. This study aims to determine the position of leaky pipes and discriminate between metal and plastic pipes to pick appropriate handling tools during excavation. Leaking pipes in the water distribution facility were identified through visual inspection and limited information about the position and kind of pipe, where rigorous excavation with proper instruments caused substantial damage to the water pipes. Meanwhile, the approach employs impulse radar, in which signals are broadcast to subsurface pipes, and the reflected signals are gathered and analyzed using a radargram. The simulation is carried out by using soil radargram results as a base, which are then compared to the radargram results of metal pipe, plastic pipe, metal pipe with water, plastic pipe with water, metal pipe with leaking water, and plastic pipe with leaking water which is buried underground in the soil. When examined to the soil radargram, the results reveal dissimilarities of radargram depiction of metal pipe, plastic pipe, metal pipe with water, plastic pipe with water, metal pipe with leaking water, and plastic pipe with leaking water.

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Abstract:
This study develops a footstep generator and its viability to harvest energy in a two-shopping center in Surigao City. The footstep power harvester module was enclosed in a wood-tile type 3x2ft size where parallel piezoelectric were embedded inside to increase the output current and placed strategically in the main entrance where people generally pass through. In this research, a microcontroller was used to regulate the dc from the piezoelectric to the 3.7-volt battery. The voltage sensor, like the current sensor, was used to Figure out how much voltage was contained in two AA batteries. Data collection of harvested energy was done using two establishments, 12hours from 6 am to 12 pm and 12 to 6 pm. The total average amount of harvested power on one 3x2ft size was equal to 668.5 mW. Tripling the footstep power harvester module would increase the power generated to 2W, enough to charge a mobile phone.

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