

Development of contactless and wireless ultrasonic technique for reinforced concrete structures

*Hajin Choi¹⁾, Ryulri Kim²⁾, Jinyoung Hong²⁾ and Jiyoung Min³⁾

^{1), 2)} School of Architecture, Soongsil University, 369 Sang-doro, Sangdo-dong, Dongjak-gu, Seoul, Korea

³⁾ Department of Infrastructure Safety Research, Korea Institute of Civil Engineering and Building Technology, Goyangdae-ro, 283 Daehwa-Dong, Ilsanseo-gu, Goyang-si, Gyeonggi-do, Korea

¹⁾ hjchoi@ssu.ac.kr

ABSTRACT

Enhanced ultrasonic inspection for internal damage identification in concrete structures are presented. The contactless ultrasonic method, derived by using the concept of wireless sensing module, is proposed to inspect concrete structures in situ. The developed ultrasonic technique are evaluated by theoretical, numerical, and experimental analysis. The results demonstrate that the contactless and wireless ultrasonic technique has a great potential of field application.

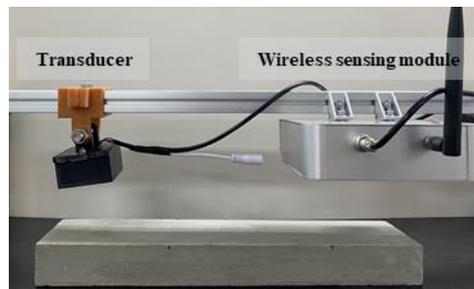


Fig. 1 Photo of test set-up

REFERENCES

- Hong, J., Choi, H. and Oh, T. K. (2020), "Application of Tooth Gear Impact-Echo System for Repeated and Rapid Data Acquisition", *Applied Sciences*, **10**(14), 4784.
Hong, J., Choi, H. and Min, J., "Application of Non-contact Ultrasonic Sensor Array for Dispersion Analysis in Concrete slabs", Submission prepared, Sensors.

¹⁾ Professor

²⁾ Graduate Student

³⁾ Senior Researcher