

Imaging of hidden anomalies in concrete & masonry structures using ultrasonic Pulse Velocity

Technology in Brief

Concrete is a heterogeneous mixture of different ingredients viz. aggregates, cement, water & sand. These structures are getting damages due to environmental weathering, poor quality and lac of maintenance. Therefore, there is a need for the development of simple techniques for assessment of these structures. Ultrasonic Pulse Velocity techniques is widely used for indirect determination concrete strength and assess the in- situ concrete quality. It is also used for the assessment for masonry structures. The same equipment can be used for localization of detected zone in form of an image.

The developed software/ program needs the ultrasound readings as an input, collected over the grid points in through transmission mode. After capturing the velocities for all the grid points of the medium, the contours are prepared where defects can be reflected. The commercially available Ultrasonic equipment provides reliable ultrasonic data and are very cost effective also. However, defect visualization facility is not available in the equipment.

Salient features/Advantages

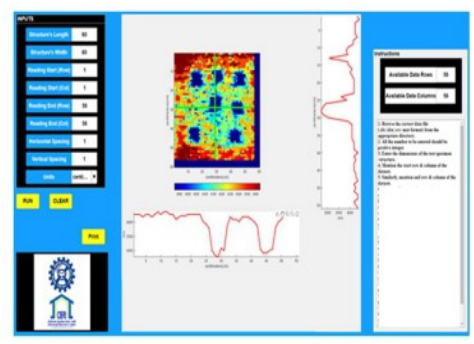
- Can be used for concrete and masonry structures.
- Isolation of defected regions.
- Can be useful for different grade of concrete.
- Identification of shape and size of the anomaly.
- Localization of weakness in the structures.
- Will be also helpful in quality assurance and certification.



a) Data Collection Technique



b) Interior of Casted Concrete



c) User Interface of Developed

Fig 1: Methodology for Imaging of Concrete / Stone

End Product(s)	Methodology, data acquisition and software
License/Commercialization	M/s Canopus Instruments
TRL	07
Environmental Impact	Environmentally Friendly can be used on any concrete/stone masonry structure
Setup - Equipment required	Any Commercial UPV Devices, PC/Laptop, Tablet (OS: Windows 7 or higher)