

# **Development of the recording device to reduce an overlook of a defect for the impact acoustic method**

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Several concrete structures, including buildings and bridges, were built during a high economic growth period in Japan. The percentages of these structures are approximately 40% of all bridges and approximately 25% of all tunnels. Many concrete structures are now at least 40years old. The deterioration of old concrete structures is a serious problem. Accidents caused by falling concrete pieces have often occurred in recent years. These concrete structures need to be inspected regularly to ensure that they are safe to be used. The impact acoustic method is typically used to inspect these concrete structures. In this method, a worker taps the surface of the concrete with a hammer. According to the current inspection standard, inspection records are only the information of detected defects. Therefore, there are not records of overlooked defects. In this study, we developed a recording device to reduce an overlook of a defect. Efficient collection is possible to use this device. The recording device has an accelerometer, a microphone and a camera. As a record, outputs from a microphone, an accelerometer and a camera are saved together in a single video file. To verify the performance, the impact acoustic test was conducted using specimens. And furthermore, estimation methods of a contact time of the hammer and striking power were considered using a load sensor.