

The use of smart phones to enhance teaching in environmental engineering and environmental science modules



The Open University

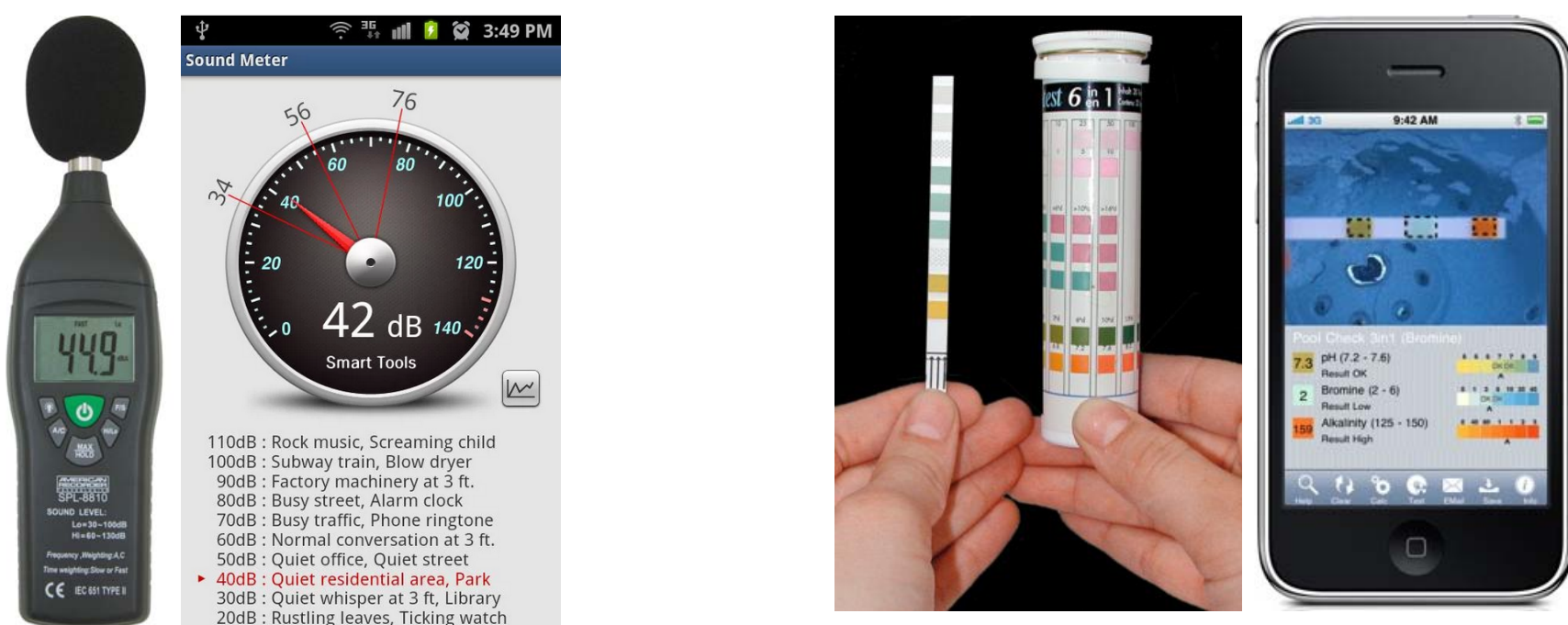
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- This Project revolves round the idea of using smart phones as measuring devices for environmental parameters related to noise, water and air.

With the demise of residential schools and home experiment kits at The Open University, the hands-on experience in measurement and monitoring has been lost in many environmental engineering and environmental science modules. The practical aspects of measurement and monitoring play an important part in developing environmental engineers and scientists for their role as protectors of the environment in which we and other forms of life live. Further, accreditation of our modules by professional institutions is often on condition that practical skills are taught.

- This use of smart phones can give distance-learning students experience in field measurement, thus enriching their learning of text-based material.

This Project will address the issue of practical skills training by making use of smart phones, which are fast-becoming ubiquitous. It is known that smart phones can be used to measure noise and certain water pollutants. For example, there are several free Android and iPhone apps that simulate a sound level meter. However, a number of issues, such as calibration or functionality, must be resolved before the use of these apps for teaching purposes.



• Tasks

A survey will be conducted of the various apps and sensors that are available to measure environmental parameters related to noise, water, and air. The costs and practical issues with their use as an educational aid will be investigated.

Developments currently underway and anticipated in the area of environmental apps, will also be ascertained.

The apps will be tested in the field – the noise app at the TXR120/T176 (Engineering: an active introduction) Residential School, and the water app on a School Field Trip. Challenges will be identified and solutions tested.

• Conclusion

This project will test the feasibility of using mobile smartphones as learning tools in teaching practical skills needed in Environmental Engineering and Science, and it is likely to be of interest in distance teaching worldwide.

Summary information will be sent to Science Education magazines (for rapid dissemination and application), before a full paper is presented at relevant Conferences, and published in peer-reviewed Journals.