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# Optimization of the Self-Recognition Direct Digital Radiology Technology by Applying the Density Detector Sensors

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**Abstract :** In 2020, the technology was introduced to solve some of the deficiencies of direct digital radiology. SDDR is an invention that is capable of capturing dental images without human intervention, and it was invented by the authors of this paper. Adjusting the radiology wave dose is a part of the dentists, radiologists, and dental nurses' tasks during the radiology photography process. In this paper, an improvement will be added to enable SDDR to set the suitable radiology wave dose according to the density and age of the patients automatically. The separate sensors will be included in the sensors' package to use the ultrasonic wave to detect the density of the teeth and change the wave dose. It facilitates the process of dental photography in terms of time and enhances the accuracy of choosing the correct wave dose for each patient separately. Since the radiology waves are well known to trigger off other diseases such as cancer, choosing the most suitable wave dose can be helpful to decrease the side effect of that for human health. In other words, it decreases the exposure time for the patients. On the other hand, due to saving time, less energy will be consumed, and saving energy can be beneficial to decrease the environmental impact as well.

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