

Radiation Monitoring System in Clinical Imaging

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The diagnosis and therapy resources recurring to imaging equipment are constantly increasing in our days. Many of these devices make use of ionizing radiation which when inappropriately used may produce undesirable effects (M, 2008). In this way, we are developing a system capable of extracting, from existing systems, the information of the ionizing radiation dose used in computed tomographies, mammographies and other x-rays, in order to in real time statistically analyze, monitor, detect and investigate if these values are in conform with the European Guidelines. On the other hand, it will be also possible to calculate the national dose averages and also the 90th dose percentile for the referred examinations. As mentioned, all these processes will work in real-time and when an exam is performed with a radiation dose above the standard levels it will issue an alert. Additionally, the user has the option to establish his own reference levels.

This will be developed using a back-end for storing all information in MySQL, a PHP-based Web service to exchange data in JSON format and a front-end/dashboard to display the results, using HTML, JavaScript library and AJAX.

The collection of these data, supported by IPOLFG, EPE and the appropriate processing by our system will provide a wide range of information (dashboard) that can be used to properly manage the clinical imaging processes. This management can be applied to improve the quality of services provided to the user, the efficient use of their diagnosis methods and the rational use of ionizing radiation.

Although there are systems with such functions (Bayer, 2016) (SECTRA, 2015) (Radiance, 2011) (Dose Monitor, 2016), this one has the advantage of being open source and dedicated to this type of analysis in real time.

References:

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