

## Design and Manufacture Detection System for Patient's Unwanted Movements during Radiology and CT Scan

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**Abstract :** One of the important tools that can help orthopedic doctors for diagnose diseases is imaging scan. Imaging techniques can help physicians in see different parts of the body, including the bones, muscles, tendons, nerves, and cartilage. During CT scan, a patient must be in the same position from the start to the end of radiation treatment. Patient movements are usually monitored by the technologists through the closed circuit television (CCTV) during scan. If the patient makes a small movement, it is difficult to be noticed by them. In the present work, a simple patient movement monitoring device is fabricated to monitor the patient movement. It uses an electronic sensing device. It continuously monitors the patient's position while the CT scan is in process. The device has been retrospectively tested on 51 patients whose movement and distance were measured. The results show that 25 patients moved 1 cm to 2.5 cm from their initial position during the CT scan. Hence, the device can potentially be used to control and monitor patient movement during CT scan and Radiography. In addition, an audible alarm situated at the control panel of the control room is provided with this device to alert the technologists. It is an inexpensive, compact device which can be used in any CT scan machine.

**Keywords :** CT scan, radiology, X Ray, unwanted movement

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