

## *ABSTRACT*

*Bed occupancy sensor is one tool that can be applied in the field of health, especially in the field of clinical engineering. Bed occupancy sensor is used to monitor and oversee certain inpatients. The sensor works by the pressure exerted by the patient when lying on it. So that the bed surface changes.*

*Bed occupancy sensor is equipped with flex sensors mounted on each pin analogue Arduino Uno. In addition, there is a bed occupancy sensor panel integrated with data processing and design of its inputs. The panel is equipped with a buzzer and a LED that serves as an indicator. In this scheme there are three segments that serve to detect the positions of the patient accurately.*

*The result can be concluded that the level of success that is produced when the sensor detects objects with different sleeping positions by 80%. And with lying sleeping position, the success rate reached 10 from 10 objects tested. Of the 10 objects with a weight range of 30-105 kg were tested, 2 of them experienced an error. Attraction weight of 30-105 kg and with certain sleep position, bed occupancy sensor can detect objects in real time. Flex resistance value at the sensor is proportional to the ADC value obtained and the weight of each object does not affect the flex sensors. And to the limit values obtained on each sensor is  $fx1 = 325 = 500$ ,  $fx2 = 310$ ,  $fx3 = 265$ ,  $fx4 = 560$ , and  $fx6 = 290$ .*

*Keywords: Bed occupancy sensor, Flex sensor, Arduino Uno, Buzzer, Fall Risk Assesment*