

## ABSTRACT

A hospital bed is a bed specially designed for inpatients or other people who need health care. This bed has special features for the comfort and well-being of patients and for the comfort of healthcare workers. Common features include adjustable height for the entire bed, head and legs, adjustable side rails, and electronic buttons for operating the bed and other nearby electronic devices.

So far, the hospital beds that we see are usually moved manually by turning the crank to a certain position; for example the cardiac position, feet elevation, and semi-fowler. This is an obstacle for patients who want to change their sleeping position independently. In designing medical bed technology for elderly patient care facilities, a mechatronic system design approach is used as the overall system design methodology.

In this study, the tool that will be designed is a mechatronics-based patient bed movement prototype. The movement of the patient's bed has been determined; namely help to Cardiac, Semi fowler, and Feet Elevation which can be moved, and there is an additional alarm feature for calling a nurse. The action desired by the patient can be selected using a selection of several pushbuttons available as a user interface.

The results obtained in this study were able to design a patient bed prototype that could change the cardiac position with the back support at  $35^\circ$  and the feet and shanks  $30$  and  $45^\circ$  and the motor in layer 1 advanced to full, semi-fowler position the same as the cardiac only motor. in layer 1 that moves backward, the feet elevation of the back support is back to form  $0^\circ$  and the feet and shank are forming an angle of  $30^\circ$  cardiac, semi-fowler, and feet elevation of more than 45 seconds. and the pushbutton system runs as planned

**Keywords:** *Patient bed, elderly patient care, mechatronics, semi-fowler, cardiac, feet elevation, buzzer*