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| **Title:** | Design of an Automated Non-Invasive Electromechanical Ventilator with Feedback Mechanism | | |
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| **Abstract:** |  |
| In medical care, ventilation provides a vital life support function for patients suffering from chronic breathing disorders or unable to breathe for themselves. Control system that delivers oxygen to such patients are still underdeveloped and mostly causes discomfort rather than easing the pain. This paper proposes the design and simulation of a noninvasive electromechanical ventilator that is capable of generating automatic feedback response based on respiratory rate (RR) and oxygen saturation (SPO 2 ) measurement. The automated response system can provide effective inspiration to expiration ratio of a patient for different levels of SPO 2 and RR with 3% error rate. The domain of automatic response of the mechanism ranges over 1:2 to 1:4 of inspiration to expiration ratio of a patient for different levels of SPO 2 and RR. The algorithm develop to measure RR is based on the ECG signal where number of R-peaks were identified within 10 seconds time interval. Hence this design is idle for patients as it nullifies post ventilation breathing trauma and most importantly allows them to use it without prior medical knowledge. | |