

ABSTRACT

Spring-mass-damper system can be simulated on RLC circuits with AC voltage as the input because both of them are second system order and have dynamic characteristics such as shape respond and time respond. In this research the value of input voltage and inductor was fixed. The output value that will be observe just the voltage on capacitor, and the dynamic characteristics that will be observe just the shape respond of critically damped and overdamped. The output of this RLC circuits still have a chance of making a noise. Because the output will be observed at microcontroller, then it needs a digital filter so the kalman filter was choosen as the filter. The aim of this research is to obvsrve the influence of kalman filter to the noise from the output and find out the noise ratio. The resistor value on the cirtuicts will be modified when the capacitor fixed and otherwise, so the aim responds will be obtained. The output from the circuits will be filtered by the kalman filter on arduino. And then the noise value before and after the kalman filter applied will be compared and the noise ratio will be observed. When transient state the noise ratio before and after filtered was 0,17V and 0,37V. when steady state the noise ratio before and after filtered was 0,16V and 0,05V. From the research that has been done, the kalman filter can reduce the noise when steady state.

Keyword: critically dampd, overdamped, noise, kalman filter.