

## **ABSTRACT**

*Capacitive Deionization (CDI) is a seawater desalination method that utilizes the working principle of capacitors. This method uses two nanopore carbon electrodes connected to 1.2 V applied voltage in order to bind  $\text{Na}^+$  and  $\text{Cl}^-$  ions. In this case, the stability of flow rate through CDI cells influences the ion adsorption. The flow is considered to be stable if the output and input has the same rate. Our CDI instruments are made using microcontroller, DC pump and water level sensor. CDI cell using two electrodes are made from Nanopore Carbon : Graphite : PVA with composition ratio of 8 :1 :1. In thos study, a CDI instrument has been built and tested using various flowrate from 0 ml/min up to 40 ml/min with 5 ml/min interval. The stability of flowrate produced by CDI instrument has a maximum oscillation at 40 ml/min with an average error of 0.008%. The 5 ml/min is found to have greatest salt reduction. From our results it can be concluded that low flow rate is more stable and has better salt absorption*