

ABSTRACT

Galvanostat is a measuring instrument in the field of electrochemistry. This tool is able to keep the current constant given to *the electrochemical cell*. The electrochemical cell is a system of test electrodes in an electrolyte solution. Most of its components consist of an Op-amp IC (*Operational Amplifier*) which is configured as a voltage amplifier, a voltage to current converter (V to I), and *voltage follower*. In this final project, *galvanostat* as a voltage measurement uses a *differential amplifier* and a voltage-to-current converter (V to I) as a constant current source. To convert voltage into current, this tool has an accuracy of 99.98% and to maintain a constant current this tool is capable of 100% if the resistance is below 2000 Ω . Setting the polarity of this current source can be done automatically using a DAC (*Digital To Analog Converter*) by changing the DAC voltage which will be the input to the differential amplifier. The *galvanostat* will be connected to the *dummy electrode* circuit (RC circuit) as a substitute for the working electrode, reference electrode and counter electrode. The final result in the form of an increase and decrease in voltage can automatically be displayed through the application as a *user interface*.

Keywords: *Galvanostat, Electrochemical Cell, User Interface, Dummy Electrode.*