Department of Electrical and Computer Engineering
North South University

Senior Design Project

A Precise Low Current Measurement Device

Shahriar Shihab	**1912725043**
Ibrahim Khalil Ullah	**1913041643**
Mahbuba Sarmin	**1921119043**

Faculty Advisor:

Dr. Nafisa Noor

Assistant Professor

ECE Department

Summer, 2023

LETTER OF TRANSMITTAL

November 2023

To

Dr. Rajesh Palit
Chairman,
Department of Electrical and Computer Engineering
North South University, Dhaka

Subject: **Submission of Capstone Project Report on "A Precise Low Current Measurement Device"**

Dear Sir,
With due respect, we would like to submit our Capstone Project Report on **"A Precise Low Current Measurement Device"** as a part of our BSc program. The report deals with the precise measurement of very small currents. This project was beneficial to us in gaining experience in the practical field and applying it in real life. We tried to the maximum competence to meet all the dimensions required from this report.

We will be highly obliged if you kindly receive this report and provide your valuable judgment. It would be our immense pleasure if you find this report helpful and informative to have an apparent perspective.

Sincerely Yours,

....
Shahriar Shihab
ECE Department
North South University, Bangladesh

....
Ibrahim Khalil Ullah
ECE Department
North South University, Bangladesh

....
Mahbuba Sharmin
ECE Department
North South University, Bangladesh

APPROVAL

Shahriar Shihab (ID: 1912725043), Ibrahim Khalil Ullah (ID: 1913041643), and Mahbuba Sharmin (ID: 1921119043) from the Electrical and Computer Engineering Department of North South University have worked on the Senior Design Project titled "A Precise Current Measuring Device" under the supervision of Dr. Nafisa Noor partial fulfillment of the requirement for the degree of Bachelors of Science in Engineering and has been accepted as satisfactory.

Supervisor's Signature

. . . .

Dr. Nafisa Noor
Assistant Professor
Department of Electrical and Computer Engineering
North South University
Dhaka, Bangladesh.

Chairman's Signature

. . . .

Dr. Rajesh Palit
Professor
Department of Electrical and Computer Engineering
North South University
Dhaka, Bangladesh

DECLARATION

It is to declare that this project is our original work. No part of this work has been submitted elsewhere, partially or entirely, for the award of any other degree or diploma. All project-related information will remain confidential and shall not be disclosed without the formal consent of the project supervisor. Relevant previous works presented in this report have been adequately acknowledged and cited. The plagiarism policy, as stated by the supervisor, has been maintained.

Students' names and signatures

1. **Shahriar Shihab**

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2. **Ibrahim Khalil Ullah**

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3. **Mahbuba Sharmin**

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ACKNOWLEDGEMENTS

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Abstract

A Precise Low Current Measurement Device

The main task of this project is to perform very small and precise size current measurement, which includes current measurement at the milli scale, microscale, and nanoscale. The work of this project has been completed through specific methods such as literature review, calculation, simulation, and hardware implementation. This project has several important significances including small-scale measurement as well as reducing burden voltage and minimizing the overall cost.