Department of Electrical and Computer Engineering
North South University

Senior Design Project

A Low-Cost Biomedical Device to measure Body Temperature, Heart Rate, ECG and Fractured Angle Through Motion

Tarek Ahmed Khan **ID# 1320350043**
Fairooz Alam **ID # 1513216642**
Debashis Bhowmik **ID # 1521155642**
Sabbir Ahmed **ID # 1520436042**

Faculty Advisor:

Dr. Mahdy Rahman Chowdhury

Assistant Professor

ECE Department

Spring, 2019

LETTER OF TRANSMITTAL

May 3, 2019

To

Dr. K. M. A. Salam

Chairman,

Department of Electrical and Computer Engineering

North South University, Dhaka

Subject**: Submission of Capstone ProjectReport on "A Low-Cost Biomedical Device to measure Body Temperature, Heart Rate, ECG and Fractured Angle Through Motion"**

Dear Sir,

With due respect, we would like to submit our **Capstone Project Report** on **"A Low-Cost Biomedical Device to measure Body Temperature, Heart Rate, ECG and Fractured Angle Through Motion"** as a part of our BS program. The report deals with the development of a hardware implementation and mobile application to provide intensive care unit system. This project was very much valuable to us as it helped us gain experience from practical field and apply 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 useful and informative to have an apparent perspective on the issue.

Sincerely Yours,

.....
Tarek Ahmed Khan
ECE Department
North South University, Bangladesh

.....
Fairooz Alam
ECE Department
North South University, Bangladesh

.....
Debashis Bhowmik
ECE Department
North South University, Bangladesh

.....
Sabbir Ahmed
ECE Department
North South University, Bangladesh

APPROVAL

Tarek Ahmed Khan (ID# 1320350043), Fairooz Alam (ID # 1513216642), Debashis Bhowmik (ID # 1521155642), Sabbir Ahmed (ID # 1520436042) from Electrical and Computer Engineering Department of North South University,have worked on the capstone project entitled "**A Low-Cost Biomedical Device to measure Body Temperature, Heart Rate, ECG and Fractured Angle Through Motion**" under the supervision of Dr. Mahdy Rahman Chowdhury as a partial fulfillment of the requirement for the degree of Bachelor of Science in Engineering and hasbeen accepted as satisfactory.

Supervisor's Signature

.....

Dr. Mahdy Rahman Chowdhury

Assistant Professor

Department of Electrical and Computer Engineering

North South University

Dhaka, Bangladesh.

Chairman's Signature

.....

Dr. K. M. A. Salam

Professor

Department of Electrical and Computer Engineering

North South University

Dhaka, Bangladesh.

DECLARATION

This is to certify that this Project is our original work. No part of this work has been submitted elsewhere partially or fully for the award of any other degree or diploma. Any material reproduced in this project has been properly acknowledged.

Students' name and signature

1. **Tarek Ahmed Khan**

---

2. **Fairooz Alam**

---

3. **Debashis Bhowmik**

---

4. **Sabbir Ahmed**

ACKNOWLEDGEMENT

At first, we wish to express our gratitude to the Almighty for everything.

We would like to express our gratitude to Dr. Mahdy Rahman Chowdhury for his valuable and constructive suggestions and enthusiastic encouragement during the planning and development of this project. His willingness to give his time so generously has been very much appreciated. He encouraged us to work ahead of time, which gave us enough room to improve our work even further. Without his guidance, this project wouldn′t have been what it is now.

We would also extend our thanks to all the teachers who guided us so far, teaching us all the necessary things needed to reach this far in the Engineering sector. We can never be thankful enough to their efforts in enlightening us with knowledge.

We would like to appreciate our family for always staying beside us. No matter whom we are or what we achieve, we are nothing without our family. We would like to thank our friends for motivating us to go along with the project, and their unbiased opinions and suggestions helped us a lot.

Last but not least, we would like to thank our classmates for their co-operation and valuable comments.

ABSTRACT

This report presents the design and the implementation of a mobile application based smart Health Care system in Bangladesh. In this system, any patient can communicate with their doctor easily through app simultaneously. There is a lackof proper management in the hospitals of our country. The main purpose of this project is to provide better opportunity for those sufferer patients who face difficulties while communicating with their doctors at the time of their need. The system has been designed in such a manner that will help a patient as well as a doctor of both rural and urban areas. This system also allows doctors to keep their patients under monitoring all the time. We developed this system to help the people of our country who are badly suffering from not having a good healthcare system in an easy and affordable way. The system will be accessible from android app via the internet. The report includes content designing, hardware implementation and android mobile application development.