North South University

Distinguish walking and running

A DESSERTATION

SUBMITTED TO THE DEPARTMENT OF

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COMPUTER SCIENCE & ENGINEERING

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SENIOR DESIGN PROJECT

Declaration:

It is hereby acknowledged that:

- No illegitimate procedure has been practiced during the preparation of this document.
- This document does not contain any previously published material without citation.
- This document represents our accomplishment while being Undergraduate students in the North South University.

Sincerely

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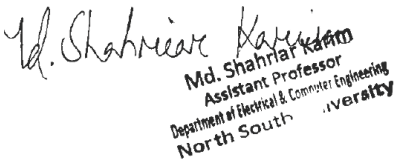
Approval:

I certify that I have read this dissertation and that, in my opinion, it is fully adequate in scope and quality as a dissertation.



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Abstract:

Physical activity is a vital need for our survival. But in the busy world that we live in, it's not often that easy for us to include exercise within our schedule. But the least we can do is keep track of how much physical activity we are doing throughout the day that can actually leave an impact on our physic. Running impact us differently than just walking. That's why it is important to keep track of both individually. It becomes even more important especially if we go out to run with the intention of exercising.

That's why our goal is to create a system that can learn the difference between running and walking from data through machine learning and provides the user with a result that contains how much they ran and how much they walked separately.

Many systems were developed over the years to distinguish walking and running. This project is about establishing a system that can detect whether someone is running or walking. For this project we went with two different approaches, both of which involved machine learning. Our first approach was to use a numeric dataset and apply them on different machine learning algorithms.

Our other approach was to use an image-based dataset to create a CNN model. The end goal for both processes was to interphase the models with an Arduino.