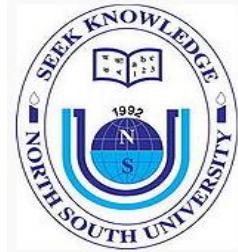


Department of Electrical and Computer Engineering North South University



Senior Design Project Report

EEE/CSE/ETE 499

AUTONOMOUS HEAT SEEKING ROBOT FOR WASTE HEAT EXTRACTION

Submitted By

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ASSOCIATE PROFESSOR

[SPRING 2019]

AGREEMENT FORM

We take great pleasure in submitting our senior design project report on “[**AUTONOMOUS HEAT SEEKING ROBOT FOR WASTE HEAT EXTRACTION**]”. This report is prepared as a requirement of the Capstone Design Project CSE/EEE/ETE 499A & B which is a two semester long senior design course. This course involves multidisciplinary teams of students who build and test custom designed systems, components or engineering processes. We would like to request you to accept this report as a partial fulfillment of Bachelor of Science degree under Electrical and Computer Engineering Department of North South University.

Declared By:

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ACKNOWLEDGMENT

First of all, we wish to express our gratitude to the Almighty for giving us the strength to perform our responsibilities and complete the report. The capstone project program is very helpful to bridge the gap between the theoretical knowledge and real-life experience as part of Bachelor of Science (BSc) program. This report has been designed to have a practical experience through the theoretical understanding. We also acknowledge our profound sense of gratitude to all the teachers who have been instrumental for providing us the technical knowledge and moral support to complete the project with full understanding.

We would like to express our deep appreciation to our supervisor **Dr. Shahnewaz Siddique** for the valuable guidance and active support without which it would have been difficult for us to complete this project. Also, our gratefulness is divine to the North South University, ECE department for providing us a course such as EEE499 in which we could really work on this project and materialize it the way we have dreamt of. We thank our friends and family for their moral support to carve out this project and always offer their support.

ABSTRACT

The main aim of this project is to maximize the use of waste heat energy. The objective of this project is to detect higher heat emitting objects or surfaces and extract wasted heat energy from that very particular area and convert it into useful energy, such as electrical energy. Like a radar system, the autonomous vehicle keeps rotating until it locks under a threshold value of temperature. The servo motors help the robot to rotate 360 degrees. It uses non-contact thermometer sensor to detect the presence of heat emitting objects or surfaces. The robot will keep moving towards the object, until it reaches the pre-set highest temperature. Once it reaches its destination, with the help of thermoelectric generations, it absorbs heat from that very particular area or radius and converts the unwanted wasted heat energy into electrical energy.