

Arduino Nano 33 BLE Sense - Sensors

EECE-4710 IoT and tinyML

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1. Objective

To learn about Arduino Nano 33 BLE Sense sensors. Run several tests for them in Arduino. Search and read a paper on sensors for IoT; write a review of the paper.

2. Assignment

In the first part of this assignment you must set-up the hardware of the TinyML Kit, install Arduino IDE and install several libraries. Follow the steps shown in class and described in the slides of this week. Then, you must run all the tests described in the slides. You do not need to run the optional tests. You must confirm to your instructors that you completed all tests successfully.

In the second part of this assignment, you must search for a research paper on any of the topics: “sensors for IoT”, “tinyML application to practical problem”, “IoT and tinyML”. Read the paper, then, write a paper review. Your review should include the following sections; **each section should have a clear bold section title**.

- 1) course info, your name, information about paper reviewed,
- 2) a brief statement of the problem that is (attempted) to be solved by the paper,
- 3) a summary of the solution,
- 4) a list of strengths of the solution,
- 5) a list of drawbacks or limitations,
- 6) ways to improve the proposed methods/techniques, and
- 7) a more detailed discussion of the types of sensors and data format that the paper used.**

In writing these reviews, please use your own words and do not just copy-and-paste from the abstract or the body of the reviewed papers!

To search for papers, you can use google scholar. For example, using google scholar and searching for “tutorial iot sensors” looks like this:

https://scholar.google.com/scholar?hl=en&as_sdt=0%2C50&q=tutorial+iot+sensors&btnG=

You can also use IEEE Xplore to search for recent papers. For example, here is a search for “tinyML”: <https://ieeexplore.ieee.org/search/searchresult.jsp?newsearch=true&queryText=tinyML> which lists many interesting papers with specific applications. Just choose one application that seems interesting to you!

Similarly, you can use ACM Digital Library to search for papers. Here is a search for “tinyML”:

<https://dl.acm.org/action/doSearch?AllField=tinyml>

Again, just identify a paper that you think you would like and read it!

An uprising publisher is MDPI, which has all its papers available online. It does have good papers too. Here is a search for “tinyML”:

<https://www.mdpi.com/search?q=tinyML>

3. Deliverables

You must write (typed) a report and upload it as a PDF file on D2L. The report should be named "**LastName_hw6.pdf**". The report should include the paper review. Upload also a PDF of the paper that you reviewed.