

NN for Classification of Floor Levels – Arduino Program

EECE-4710 IoT and Machine Learning

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1. Objective

Use the NN model for classification of floor levels that you developed in the previous assignment to create a new Arduino application to test the model on the Arduino Nano 33 BLE Sense board.

2. Assignment

Starting from the “hello_world” Arduino example, create a new Arduino project, which shall use your own NN model for classifying the floor levels. Note: you may also use for inspiration the “micro_speech” example, which also deals with classification of four classes.

The response to detecting a certain floor should be sent to the local computer via Serial as a message of the following form:

```
Detected floor number: 0,1,2,3
```

At the same time, upon a successful floor detection, you should control the RGB LED as follows:

1. Off for floor 0
2. Red for floor 1
3. Green for floor 2
4. Blue for floor 3

3. Deliverables

You must write (typed) a report and upload it as a PDF file on D2L. The report should be named “**LastName_hw10.pdf**”. The report should include the following sections:

- 1) Title + course info + your name
- 2) **Summary.** Describe in one paragraph what the objective of the assignment is.
- 3) **Application Development.** Briefly describe your application.
- 4) **Testing.** Discuss the testing you did. Include photographs of the experimental setup in action. Include also screen-shots of the Serial Monitor showing detection messages.
- 5) **Conclusion.** Present your conclusions and describe what issues you encountered and how you solved them.
- 6) **References.** Include all references that you used, as a numbered list. Cite them in the report itself; do not just list them here.

You should also upload on D2L all your Arduino code. Include the source code files and the report file into a .zip named “**LastName_hw10.zip**” and upload it on D2L.