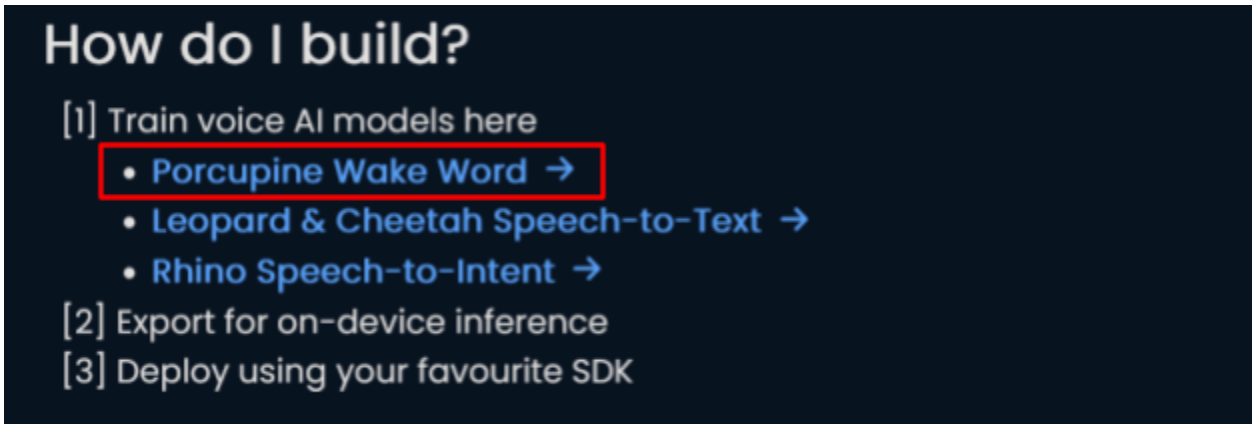
Documentation for Picovoice Console

- How to generate Models for Wake word and intent detection

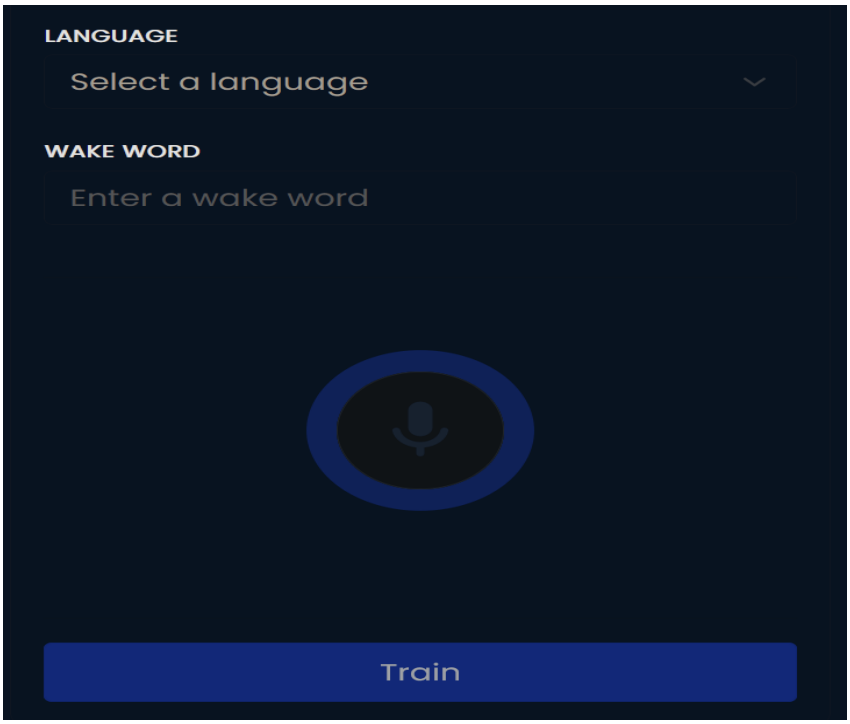
Link to Console Home Page:
https://console.picovoice.ai/

Link to Expression Cheat Sheet:
https://picovoice.ai/docs/tips/syntax-cheat-sheet/

Wake Word Model (Porcupine)

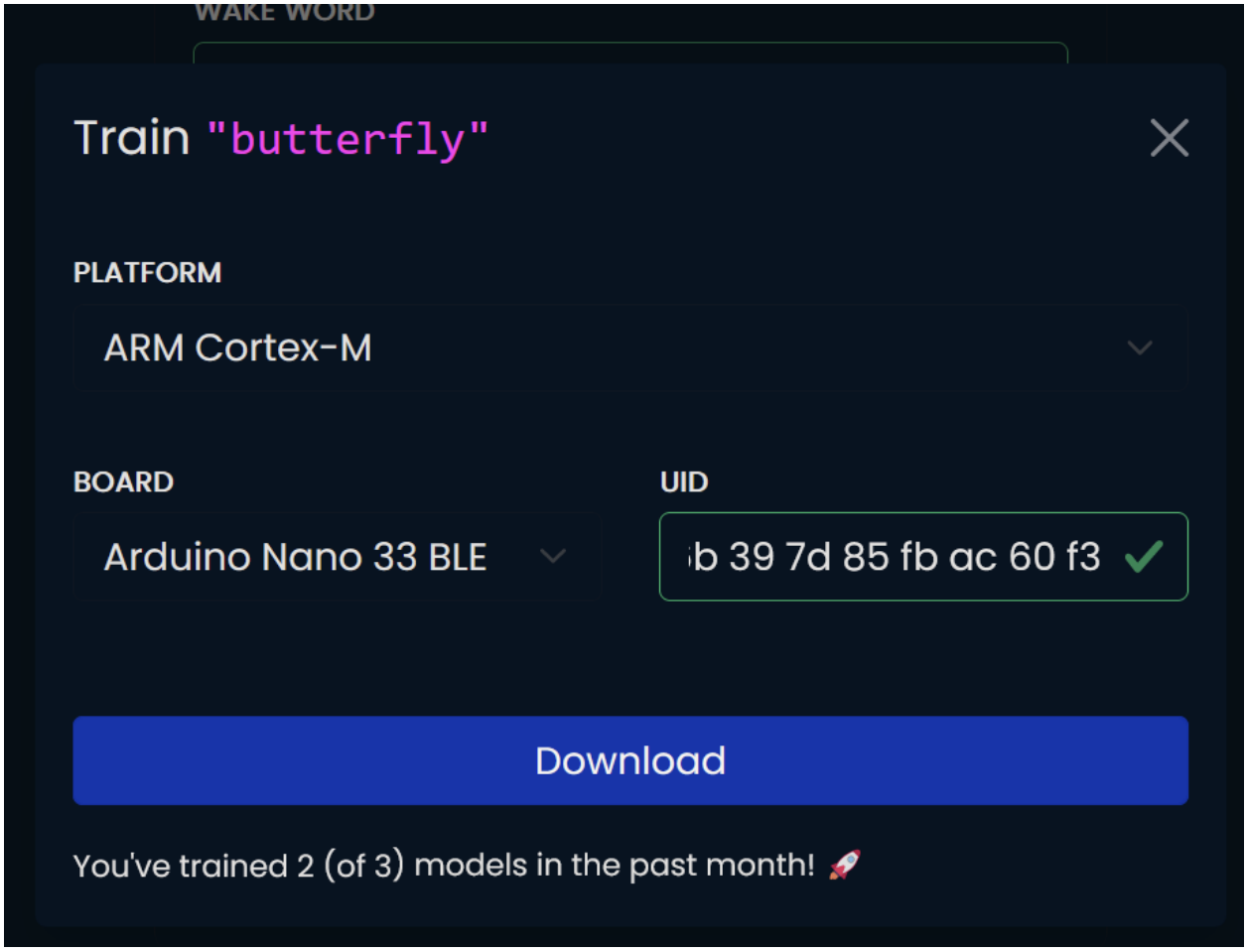


You will be brought to this page were you'll be asked to enter a language and a word to select as the wake word:

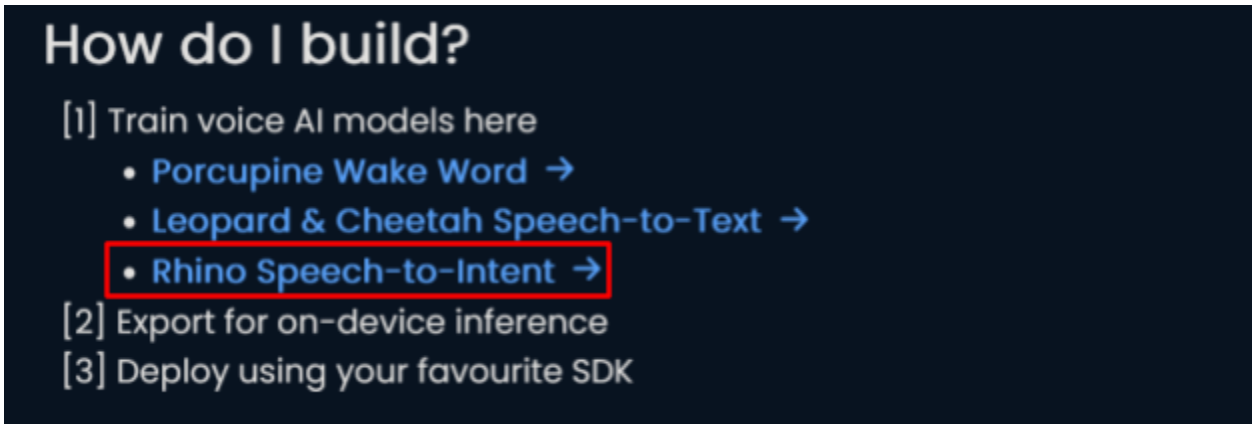


Once you select a word and a language, click on train to generate the model. Select:

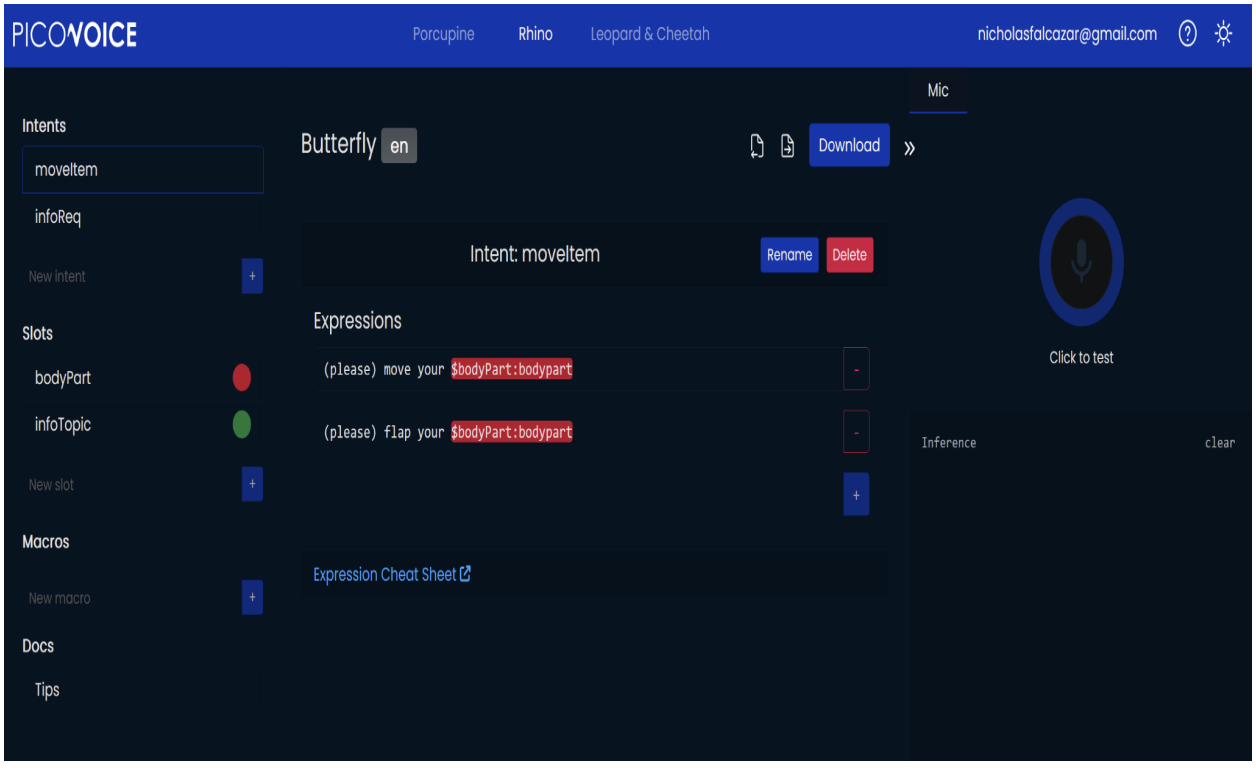
- Platform: ARM Cortex-M
- Board: Arduino Nano 33 BLE
- UUID - number that comes from Arduino Serial Monitor
    - Ours is: 6b 39 7d 85 fb ac 60 f3


WAKE WORD
Train "butterfly"
PLATFORM
ARM Cortex-M
BOARD
Arduino Nano 33 BLE
UID
b 39 7d 85 fb ac 60 f3
Download
You've trained 2 (of 3) models in the past month!

Intents Model (Rhino Speech to Intent)



You will be brought to a page to select an Intent library to work on. If you haven't created one yet, select the "New Context" button to make a new library. Once you've made/selected the intent library, you'll be brought to a screen to input intents and expressions:



**Refer to Expression Cheatsheet linked above for more info.
TODO: Need to look into how to properly use slots and macros

- Only using slots seems to fit our use case

There are 3 main sections to this page:

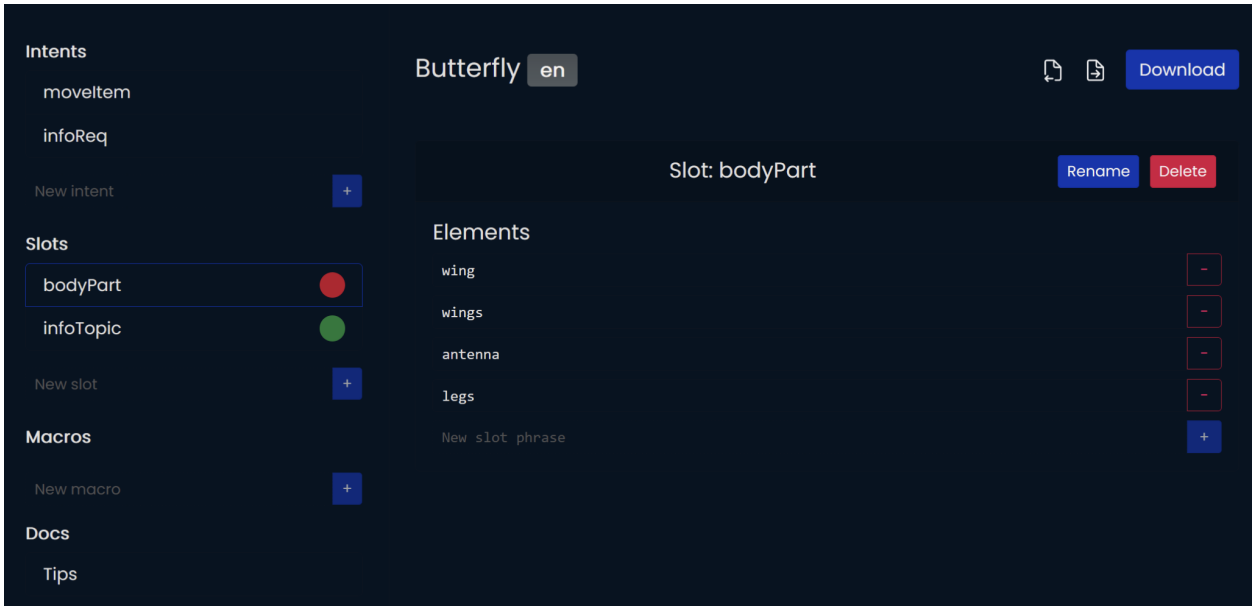
- Intent, Slot, and Macro selection/creation on the left
- Middle area to add expression to intents or values to slots/macros.
- Test the model on the web with the section on the right

Intents:

- Represent general topics a series of possible commands/phrases fall under.
    - Ex: in our case, we have an intent to represent all movement commands and an intent to represent all commands that request information.
- **Expressions**:
    - A phrase for the intent to listen for.
    - Has special syntax that allows for more general phrases to detect.
        - (word)
            - Optional Word
        - [word1, word2, $slot1:var_name, macro]
            - Choice of word. Phrase must satisfy one of the options between the brackets
- EX: see picture above for intent selection example

Slots:

- Used to represent a series of “known” possible values that fit a topic.
- Help generalize expressions by allowing multiple words to be detected in a single slot.
- Can specify multiple slots of the same type in the same expression by using different var names
    - Slot syntax: $slot:var_name
    - Ex multi slot: would you prefer $chores:chore1 over $chores:chore2
- You must specify which words are part of a slot by selecting the slot in the left area and populating the fields in the middle.
- The slot variable name and value are returned with the intent structure
- EX:



Building the Model:

- Click on the “Download” button to generate the Rhino model
- You’ll see the same window pop up from what popped up with generating the Porcupine model. You’ll make the same selections:
    - Platform: ARM Cortex-M
    - Board: Arduino Nano 33 BLE
    - UUID: number from Arduino serial console
        - Our case is: 6b 39 7d 85 fb ac 60 f3

Adding Models to Arduino

Downloading the models will give a folder with multiple files. All you need are the header files (.h) from each of the models to be added to the Arduino code.

How to add (.h) files to Arduino IDE for building:
https://arduinogetstarted.com/faq/how-to-add-a-header-file-on-arduino-ide