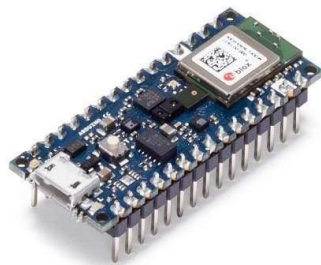


TinyML Course Kit Overview





Nano 33 BLE Sense (+ USB cable)



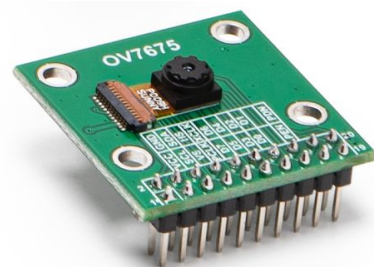
Purpose

AI-enabled developmental **microcontroller board** with USB-A to microB cable

Specifications

- nRF52840 MCU (ARM Cortex-M4): 3.3V, 64MHz, 1MB flash, 256 kB RAM
- Sensors on board: microphone, IMU, color, light, proximity, temperature, humidity, and more!
- BLE module with application-adjacent protocol layers (GAP, GATT) covered by **ArduinoBLE** library

OV 7675 Camera Module



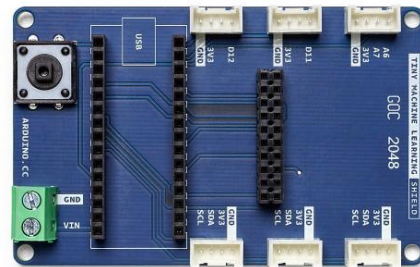
Purpose

Breakout PCB for *tiny* camera, for use in person-detection exercises

Specifications

- Low-voltage, 0.3 MP CMOS VGA (can step down to QVGA, QQVGA) image sensor
- Serial Camera Control Bus (SCCB) + Camera Parallel Interface (CPI) / Digital Video Port (DVP) interface
- Breaks ribbon cable out to 2x10 pin array

Tiny Machine Learning Shield

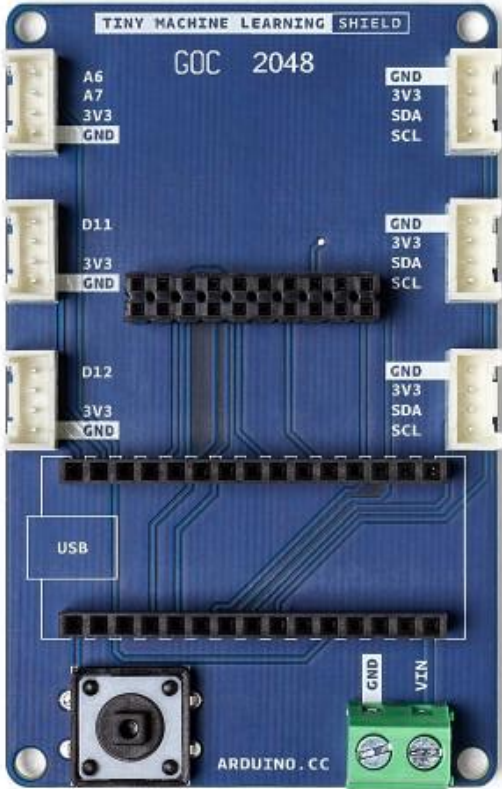


Purpose

A daughter PCB designed to **breakout the I/O** from the Nano 33 BLE sense to permit easy, reliable **communication with** other local, **off-board elements**

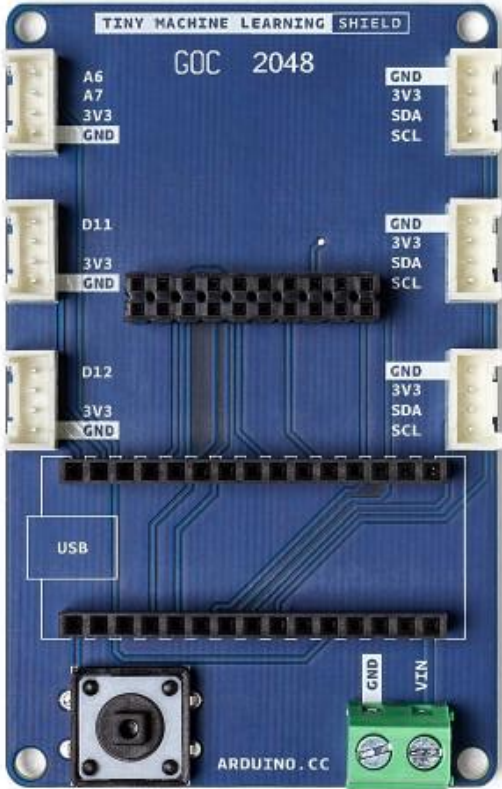
Specifications

- Grove connectors (3.3V I2C and simple digital / analog - see pinouts)
- 2x10 pin array for OV7675 camera module
- Voltage input terminal block, accepts 4.5 to 21V (down regulated to 3.3V on Nano 33)



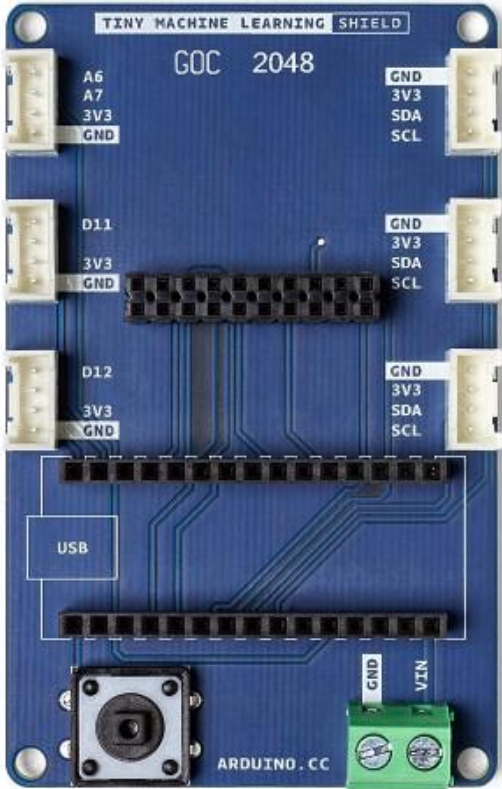
TinyML Shield

Two rows of 1x15 headers
that you can slot the Nano
33 BLE sense into



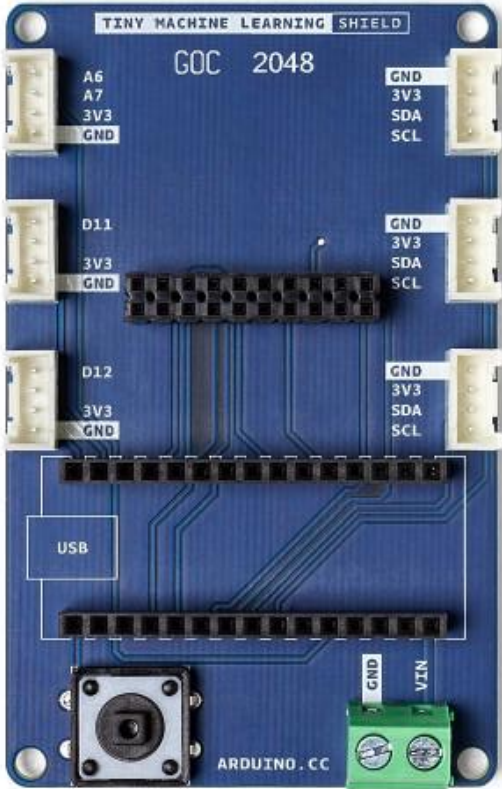
TinyML Shield

2x10 header that is intended to receive the corresponding pins of the OV7675 camera module



TinyML Shield

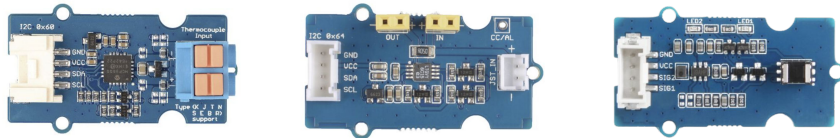
Standard Grove connectors, to permit serial communication (I2C = power + data + clock) with modules (both sensors and actuators)



TinyML Shield

Grove connectors that
break out analog and
digital GPIO

Grove Connectors

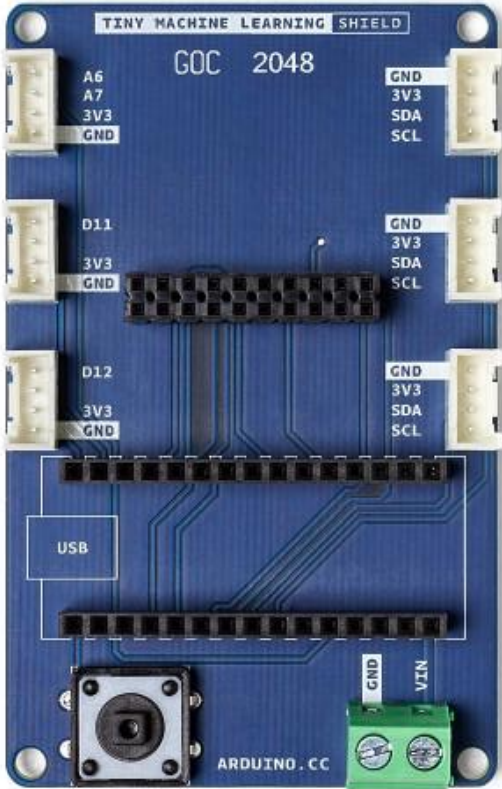


Purpose

Facilitate **plug-and-play connections** to off-board modules to extend the possible scope of functionality to new **TinyML** applications

Specifications

- Proprietary connection system from SeeedStudio, similar to JST PH-type connectors
- Large catalog of sensors, actuators available at [seeedstudio.com](https://www.seeedstudio.com)
- Be sure to check the voltage requirements and pinout of any new Grove module for compatibility with this shield before purchasing or connecting said module



TinyML Shield

A easily programmable button on the left

Screw-in terminal block for external (battery) power

