App Inventor + IoT: Sound Recorder

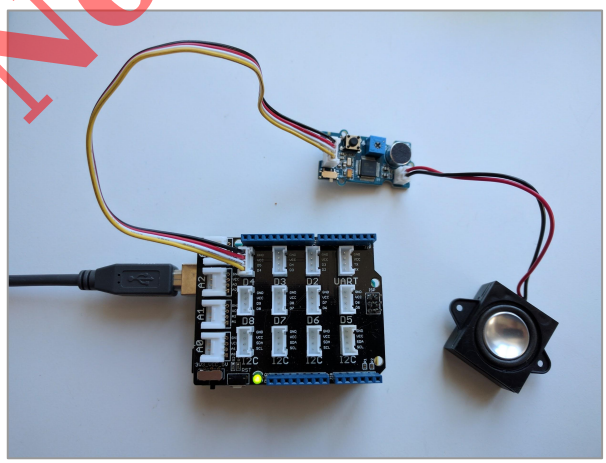
30 min

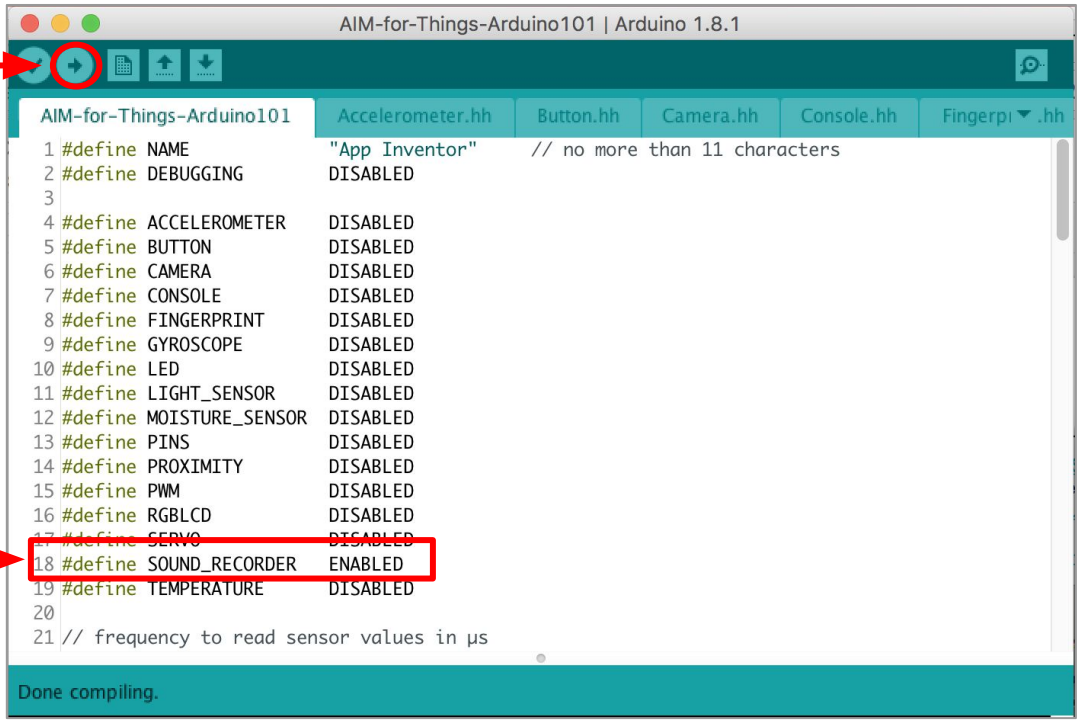
(with IoT Setup and Basic Connection tutorials completed)

This tutorial will help you get started with App Inventor + IoT and a sound recorder on an Arduino 101 controller. We are also using a Seeed Grove shield for this tutorial. You do not need to use this board, but it does make things easier. The recorder we recommend is the Grove - Recorder.

Before you start you should first complete the App Inventor + IoT Setup tutorial to set up your Arduino device.

- Connect the sound recorder to the Grove board in the D4 pin connector.
- For this tutorial make sure **SOUND_RECORDER** is set to **ENABLED** and all others are set to **DISABLED**.
- You should also click the arrow button in the top left to upload the code

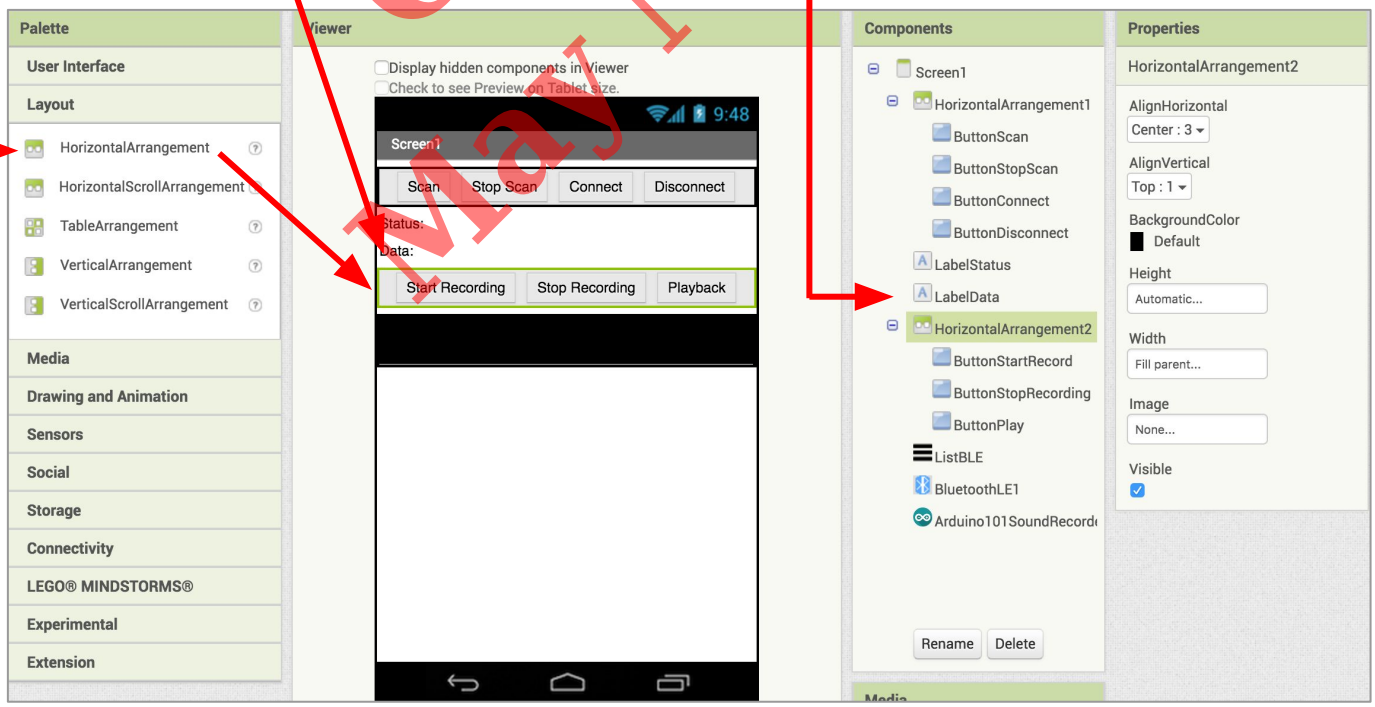




Next, you should complete the App Inventor + IoT Basic Connection tutorial to make a basic connection to the Arduino device. If you prefer, you can download the completed .aia file here.

The remaining steps all build off of the the starter code for Basic Connection tutorial and .aia:

- Drag a **Label** from the User Interface Palette and drop it between **LabelStatus** and **ListBLE.**
  - Rename the **Label** "LabelData".
  - Change its text to “Data: “.

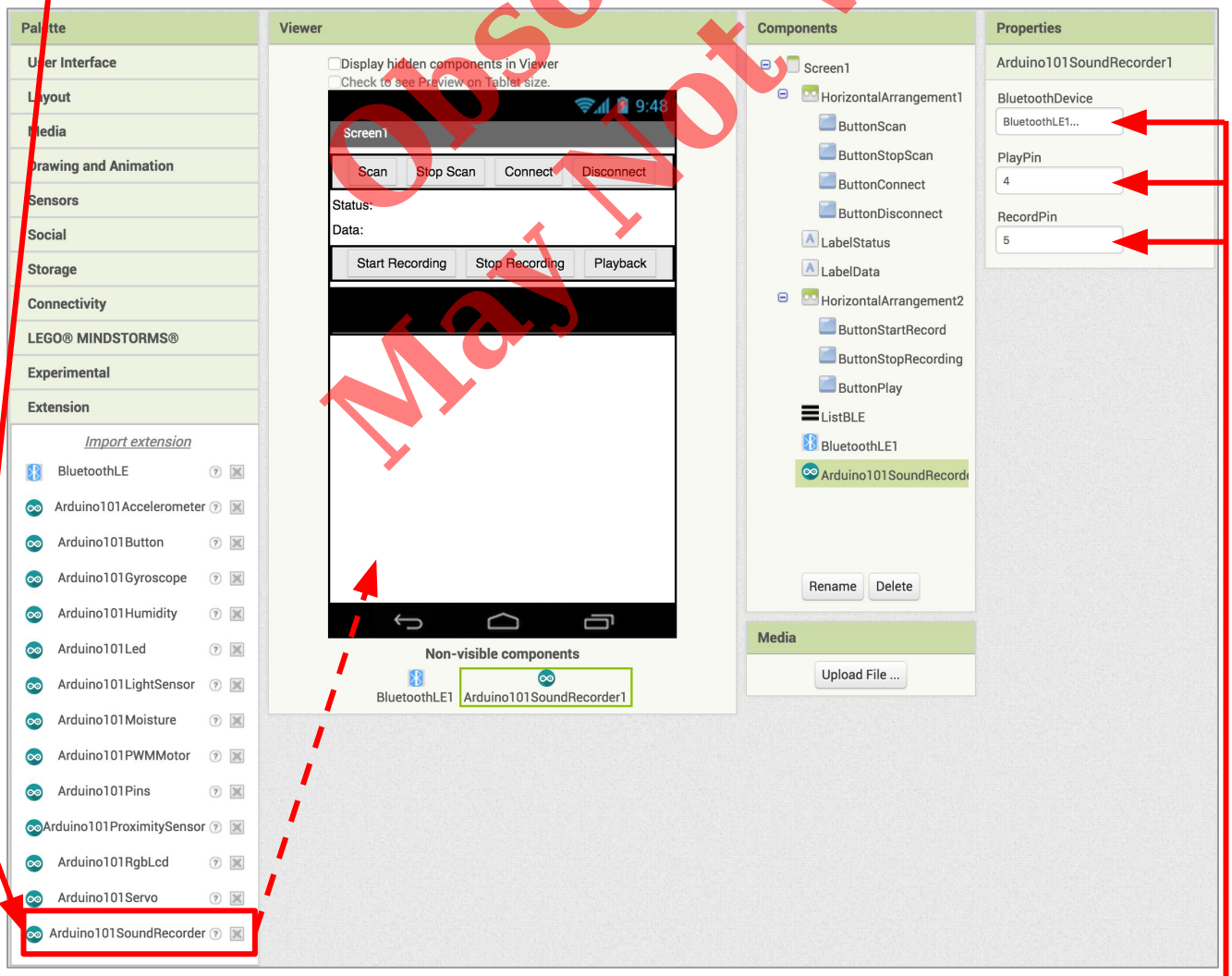


Next, we need to add the buttons to start and stop the sound recording and let us play it back.

- In the Palette window, click on Layout and drag in a *HoriztontalArrangement* below *LabelData* in the Viewer.
  - In the Properties window set the *AlignHorizontal* to "Center: 3" and *Width* to “Fill Parent”.
  - From User Interface, drag in three buttons.
    - Rename the first "ButtonStartRecording".
      - Set its text to "Start Recording".
    - Rename the second "ButtonStopRecording".
      - Set its text to "Stop Recording".
    - Rename the third "ButtonPlay".
      - Set its text to "Playback".

Now let's make sure we have the right extension for the Sound Recorder:

- In the Palette window, click on Extension at the bottom and then on "Import extension" and click on "URL".
  - Paste in this URL: http://iot.appinventor.mit.edu/assets/resources/edu.mit.appinventor.iot.arduino101.aix
- Add the **Arduino101SoundRecorder** extension to your app by dragging it onto the Viewer.



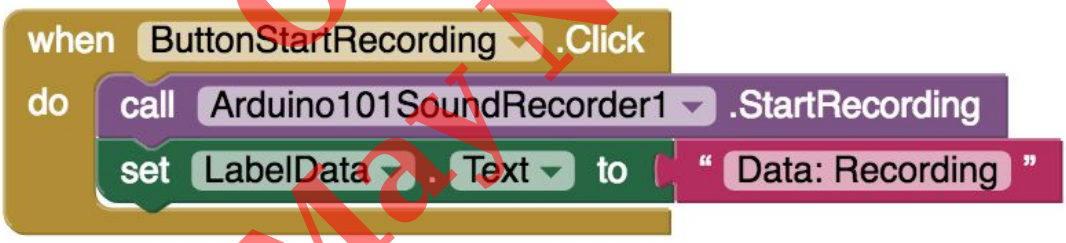
Next, we need to let App Inventor know which pin on the Grove board the sound recorder is connected to.

- Click on **Ardunio101SoundRecorder1** in the Components pane.
- In the Properties pane, click on BluetoothDevice and select ~~**BlutetoothLE1**~~.
- Under **PlayPin**, enter the digital pin that matches the one the sound recorder is plugged into on the Grove board (in this case D4).
  - *Note: You only need to put the number (4), not the letter 'D'.*
- Under **RecordPin**, enter a number ***one higher*** than the **PlayPin** (5).
  - *Note: There isn't actually another pin you have to plug in, the Grove board deals with this automatically.*

Now switch to the Blocks Editor view

First, we want to set it up so the sound recorder begins recording when we press the "Start Recording" button.

- from **ButtonStartRecording** in the Blocks pane, drag in **when ButtonStartRecording.Click**.
  - From **Arduino101SoundRecorder**, add **call Arduino101SoundRecorder1.StartRecording.**
  - From **LabelData**, add **set LabelData.Text to.**
    - From the Text drawer, connect a text block and type **"Data: Recording"** .



Next, we want to stop the sound recorder when we press "Stop Recording".

- from **ButtonStopRecording** in the Blocks pane, drag in **when ButtonStopRecording.Click.**
  - From **Arduino101SoundRecorder**, add **call Arduino101SoundRecorder1.StopRecording.**
  - From **LabelData**, add **set LabelData.Text to**
    - From the Text drawer, connect a text block and type **"Data: Recorded".**

Finally, we want to start play back the sound when we press "Playback".

- from **ButtonPlay** in the Blocks pane, drag in **when ButtonPlay.Click.**
  - From **Arduino101SoundRecorder**, add **call Arduino101SoundRecorder1.PlayRecordedSound.**

Your app should now be working! Connect your Arduino device using the MIT AI2 Companion (if you haven't already). Test it out by recording your voice or another sound and having the app play it back for you.