App Inventor + IoT: Sound Recorder



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

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



AIM-for-Things-Arduino101	Accelerometer.hh	Button.hh	Camera.hh	Console.hh	Fingerpi 🔻 .hh
1 #define NAME 2 #define DEBUGGING 3 4 #define ACCELEROMETER 5 #define BUTTON 6 #define CAMERA 7 #define CONSOLE 8 #define FINGERPRINT 9 #define GYROSCOPE 10 #define LED 11 #define LIGHT_SENSOR 12 #define MOISTURE_SENSOR 13 #define PINS 14 #define PROXIMITY 15 #define RGBLCD 17 #define SOUND_RECORDER 19 #define TEMPERATURE	"App Inventor" DISABLED DISABLED DISABLED DISABLED DISABLED DISABLED DISABLED DISABLED DISABLED DISABLED DISABLED DISABLED DISABLED DISABLED DISABLED DISABLED DISABLED DISABLED	// no more	than 11 char	acters	

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

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: "

Palette	Viewer	Components	Properties
User Interface Layout Image: Interface Image: Interface <t< td=""><td>Display hidden components in Viewer Check to see Preview on Tablet tize. Screen Scan Stop Scan Connect Disconnect Status: Data: Start Recording Stop Recording Playback</td><td>43 43 43 43 43 43 43 43 43 43</td><td>HorizontalArrangement2 AlignHorizontal Center : 3 • AlignVertical Top : 1 • BackgroundColor Default Height Automatic Width Fill parent Visible Visible</td></t<>	Display hidden components in Viewer Check to see Preview on Tablet tize. Screen Scan Stop Scan Connect Disconnect Status: Data: Start Recording Stop Recording Playback	43 43 43 43 43 43 43 43 43 43	HorizontalArrangement2 AlignHorizontal Center : 3 • AlignVertical Top : 1 • BackgroundColor Default Height Automatic Width Fill parent Visible Visible

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 <u>digital</u> 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.

when ButtonPlay .Click call Arduino101SoundRecorder1 .PlayRecordedSound do

Your app should now be working! Connect your Arduino device using the MIT Al2 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.

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