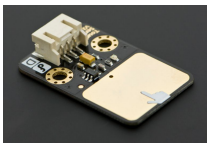
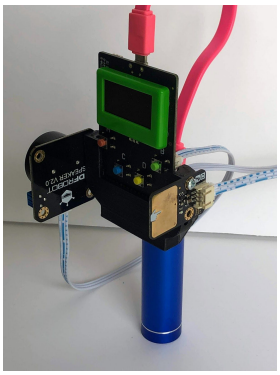
MoveMusic App (KAP004)

Loudspeaker Plug into P4	FIT0449	
Touch Sensor (Optional) Plug into P5	DFR0030	
Screen Showing C4 (middle C) and C3 (one octave below. *Check out the frequency relationship of the two notes*		
Handle Mounting Attach the **loudspeaker** to the one arm of the handle using a little screw. If you have a **touch sensor**, you can either attach it to the other arm, or let it float freely and touch it when you want a note to play.		

Context

This app plays musical notes using gestures. It uses its on-board accelerometer to play the C Major scale in the seven octaves of a standard piano.

What is on the screen

1. **Top**: The name of the app with the **loudspeaker** shown as shown as being plugged into P4 and the **touch sensor** into P5
2. **Middle**: The note to be played when either **Button D** is pressed or the **touch sensor** is activated. Its **Freq**uency is shown below the note in Hertz (Hz), or cycles per second.
3. **Bottom**: **Button A** is Exit from application; **Button C** is a special effect which “wobbles” the note up and down in frequency when **Gli**ssando is toggled ON and OFF; **Button B** plays the note when pressed.

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Directions for MoveMe app

1. Plug the loudspeaker into **P4** and (optionally) the touch sensor into **P5** and run the **MoveMusic** app.
2. If you have an Austem 3D printed handle, attach the loudspeaker and touch sensor to each side with little screws through the holes in the modules.
3. Use the touch sensor or **Button D** to play the note showing on the screen.
4. The note showing when the Kookaberry is perfectly level is middle C (ie, the note C in the fourth octave of a standard piano - written as C4).
   Change the note within the same octave (#4 when level) by tilting the Kookaberry forwards (to lower the note) or backwards (to make it higher).
   Change the octave by rotating it to the right (for higher octaves) or to the left (for lower octaves).

Algorithm

1. Create a sine waveform with two octave overtones
2. Create the musical scale from C4 to B4; multipliers for each octave; and note lengths
3. Set up the Digital to Analogue Converter (DAC) to produce and analogue output on P4
4. Set up button and touch sensor to play note
5. Read accelerometer to set up pitch and octave by tilt and rotation
6. Display note, octave, and frequency
7. Read Button D or input on P5 to play note.