Instructions for Using the Evaluation Kit
(Go to: http://kookaberry.auststem.com.au/evaluation/)

What's inside?

Two Kookaberries; batteries, connecting leads; and sufficient peripherals to demonstrate its functionality and potential.

Register

Please register as a user on the Kookaberry website. This will allow you to comment, post, and contribute content under your own name.

Introduction to the Kookaberry

The following content will reference various pages of the Kookaberry and AustSTEM websites. View the Tutorial-Getting Started. This will show you how to turn on your Kookaberry; name it; and use it wisely.

Apps to use with the kit peripherals

- **Buzzer(s):** BalanceMe: a fun egg-and-spoon race. Semaphore: Demonstrate how digital systems represent and transmit data *[Outcome ST3-11DI-T of the NSW S&T(K-6) Syllabus]* by sending Waves, Likes, and sounds over the Kookaberry's packet radio.
- **Loudspeaker**: MoveMusic: This plays musical notes using gestures.
- **Soil Moisture Probe**: WaterMe: This measures moisture in the soil and switches a pump on and off (via a relay) to water a plant.
- **DHT11/22**: SenseDHT: This measures, logs, and transmits temperature (T) and relative humidity (RH)
- **Ambient Light sensor**: LightMe: This senses the level of the ambient light and, if too dark, switches on a light (LED).
- **Potentiometer/Fan Module/Push Button**: Tutorial-Start your engines: Demonstrating analogue signals and logic in the context of starting a car when the petrol tank is full enough and the ignition button is pressed.
- **Heart Rate sensor**: Pulse: This measures heart rate at rest or after exercise *[Not included in some kits]*
- **Crash Sensor (**Micro-switch**):** Alarm: Can be used in many apps as a substitute for Push Button to demonstrate the operation of a limit switch.

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Other Interesting apps

- Binary Numbers: This is a hands-on, practical demonstration of how to convert decimal numbers to binary and vice versa. Showing the decimal number next to the binary digit and observing that you just have to add them together if the bit is "1" to convert binary to decimal, has resulted in many "Ah..Hah" moments for both primary and secondary teachers.
- Analogue: This demonstrates proportional control where an output is triggered when a threshold value is reached. It also demonstrates proportional servo control and the app description explains how a servo works.
- Logic: This demonstrates the operation of the five Boolean logic gates (AND, OR, NAND, NOR, XOR) used by computers for mathematical computation. Although not normally introduced into the curriculum until Stage, their logic and applications are readily obvious at Stage 3.
- BounceMe: This shows the acceleration waveform after a Kookaberry is dropped onto a soft surface. The normal acceleration is shown as going to zero in freefall and then the sudden acceleration and fade as it hits the surface. Press Button B for more than one second before starting the bounce to freeze the first 2 seconds on the screen

Tutorials

- Tutorial-Measurement: This shows how to use the DHT11 temperature and relative humidity sensor to make a simple measurement in the context of the WeatherHere app. The DHT11 page describes how these types of sensors work. A more comprehensive SenseDHT app is also available.
- Tutorial-Data logging: This shows how to use the ambient light level sensor and the LightMe app to demonstrate the data logging functionality of the Kookaberry.
- Tutorial-Start your engines: In this Tutorial you will be simulating the starting of a car engine when the petrol tank is 75% full using one Kookaberry. You will then connect it to another Kookaberry and show how the engine can only be started when the tank is both 75% full **AND** an ignition button is pressed.
- Music: This Tutorial directs you to the various Apps and Learning Plans available to enhance Music subjects.

Learning Plans

- Food for Thought: Students will check each other's lunch boxes for various categories of food on the Australian Guide to Healthy Eating. The number of items of food in each category are recorded on a keypad using the CountMe app and transmitted to the teacher's Kookaberry running the ListenLog app for display and analysis.
- Practice makes Perfect: Students will design and run an obstacle course whilst using the BalanceMe app with the aim of improving their balance and reducing their number of

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'drops'. The app emulates an egg and spoon, detecting, recording and transmitting time taken and number of drops.

- Making Music: Students will explore musical pitch and tune bottles using their Kookaberry running the MoveMusic app.

Introduction to digital systems

This Introduction to Digital Systems presentation uses the Kookaberry to demonstrate the fundamentals of digital systems.

Contact John Phillips for help or additional information

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