**Spike outcomes**

**Name:** Using the Adafruit Fast Vibration Sensor Switch (Easy to trigger)

**Goals:**
Discover usage and practically of using the sensor for the shower project.

**Personnel:**
primary – Luke Jackson  secondary - ?

**Technologies, Tools, and Resources used:**

- ESP8266 evaluation board
- LED
- Breadboard
- Wires
- Adafruit fast vibration sensor
- esploader
- NodeMCU esp8266 firmware
- https://forums.adafruit.com/viewtopic.php?f=25&t=60313&sid=70e889668eb960b78e6697b9bcf2d9b4
- https://www.adafruit.com/products/1766

**Tasks undertaken:**

- Incorporated the adafruit into LED blink with webserver (see spike05). The Adafruit sensor is placed between the LED and GPIO02. When the vibration sensor is on (vibrations are happening), it allows the high from GPIO02 to pass on to the LED +. Vibration sensors grnd simply goes to ground.
- Tested various levels of vibration;
  - Tapping with fingernail: No response.
  - Vibrating mobile phone against sensor: No response.
  - Hitting breadboard quite hard: Response.
  - Placing sensor against a bathroom tap, with water on full force: No response.
- Not tested (no access to shower at time of work done)
  - Placing sensor against a shower head/tap.

**What we found out:**

- The very thin wire on the adafruit is ground.
- The grnd is risk of breaking.
- The grnd wire doesn't connect reliably in a breadboard. If circuit is not working, verify its connecting correctly here.
- The vibration sensor is not very sensitive. Even though this is the "fast/easy to trigger" sensor, smaller vibrations do not trigger it well.
- The sensor is essentially just a switch. When vibration happen the switch is open, otherwise it is closed.
- **The sensor is probably not suitable for the shower project.**

**Open issues/risks [Optional]:**

- The sensor may function on a shower pipe/head, as they have higher water throughput and thus likely to vibrate more than a tap.
- Some showers (modern or just different) may vibrate less, and the system could be inconsistent.

**Recommendations [Optional]:**

* Perform the test on an actual (preferable a variety) shower head.