Student Name: Caoimhín Arnott (20104296) YouTube link – Physical Device Demo: <https://youtu.be/TMLf0rTOC_Q>

Project Repo URL: <https://github.com/Kwee-Veen/SnackTrap> YouTube link – Digital Elements: <https://youtu.be/uctcDUEStUQ>

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| Grade Band | Combined Knowledge | Networking Technologies | IoT Solution | Communication |
| Base | Incorporates:  **CompSys &** **Networking:** Linux OS concepts, several HTML requests, much more.  **Programming:** back-end coding concepts implemented in Python, but learned in Java.  **Databases:** all arming / disarming / alarm events are logged to Blynk events, and alarm events also sent to Firebase in JSON format.  **Web Dev:** full Glitch web site. | **Wireless protocols**: SSH for headless RPi access, Blynk's proprietary communication protocol, HTTP messaging to trigger a variety of Blynk events, and Websocket to push JSON alarm files to Firebase.  **Cloud & IoT Frameworks:** solution integrates with Blynk & Firebase. Light data is viewable via the Blynk app. Event data is recorded in both Blynk (Events) & Firebase (as JSON data). | **IoT solution**: device functions successfully as intended, without deficiencies.  **Sensor data** is acquired, then gated by light levels to yield an alarm state under target conditions only.  The device can be **controlled via the** **physical** **joystick or via the Blynk app**. False alarms can also be prevented by disarming the device before the alarm sounds, by pressing *down, up, down* on the joystick.  The **owner is notified** of alarm events in three ways: 1) Optically, via the SenseHAT light pixel array, which also illustrates when the device is monitoring light levels, or being armed or disarmed via the joystick, and  2) via Blynk app notifications, and  3) via email.  The device's **history can be reviewed** via the Blynk timeline; arming, disarming, and alarm events are all listed. Alarms events are also available in JSON format in Firebase if required. | Clearly commented code.  GitHub repository with readme & clear presentation.  Instructional videos highlighting both physical and digital elements separately. Configuration advice also supplied.  Glitch web app with images of the device and links to all platforms employed. |
| Good |
| Excellent |
| Outstanding | Implemented joystick functions to arm or disarm the alarm in response to a sequence of directional inputs, using self-acquired knowledge coupled with back-end concepts introduced in **Programming**. |