Wear Compliance: The amount of time the study participants wear the

device as prescribed by instructions.

The food intake sensor used in the study was the Automatic Ingestion Monitor, version 2 (AIM-2) consists of a low power 3D accelerometer (ADXL362 from analog devices, Norwood, MA, USA), a chewing sensor (SpectraSymbol 2.2” flex sensor), and a 5-megapixel camera with a 170 – degree wide-angle gaze-aligned lens. The camera captures images periodically at a rate of one image per 15-second interval. The accelerometer signal was sampled at 128 Hz and all the collected images and signals were stored in the SD card.

Four types of wear compliance:

1. Normal wear (NMW): The device being worn as prescribed
2. Noncompliant wear (NCW): The device is worn, but not as it is supposed to be worn, for example, eye-glasses lifted to the forehead or hanging from the neck
3. Non-wear-carried (NWC): where the device is carried on the body, for example, inside a bag or in a pocket
4. Non-wear-stationary (NWS): Where the device is completely off the body, such as when it is placed on a desk.

Results:

performance of the combined classifier is superior, but the accelerometer classifier can be used as the primary means of compliance detection where only an accelerometer signal is available.

1. If compliance is detected by an accelerometer, the camera does not have to take continuous images and could only be triggered during food intake. This greatly alleviates privacy concerns.
2. The camera demands significantly more power than an accelerometer. Delegating compliance detection to the accelerometer has the potential to dramatically extend battery life, which is extremely important for a wearable device.

Conclusion:

1. In terms of accuracy and privacy protection, accelerometer-based classifier is a good option.
2. We can potentially increase wear compliance by capturing image only during food intake, and implementation of a contactless chewing sensor