algorithm is based off the concept that during a fall, a person experiences a momentary freefall or reduction in acceleration, followed by a large spike in acceleration, then a change in orientation. The flowchart for Algorithm is given below. We see the algorithm checks to see if the acceleration magnitude (AM) breaks a set lower threshold. If this lower threshold is broken, the algorithm then checks to see if AM breaks a set upper threshold within 0.5s. If this upper threshold is broken, the algorithm then checks to see if the person’s orientation has changed in a set range within 0.5s, which would indicate a person has fallen or toppled over. If the person’s orientation has changed, the algorithm then examines to see if that orientation remains after 10s, which would indicate the person is immobilized in their fallen position on the ground. If this holds true, the algorithm recognizes this as a fall. A failure of any of the intermediate decision conditions would reset the triggers and send you back to the start. The strength of this algorithm is that it requires an activity to break two AM thresholds and have an orientation change. Ideally this additional lower threshold would reduce the number of false positives. The weakness of this algorithm is that it requires the fall to involve an orientation change.

