

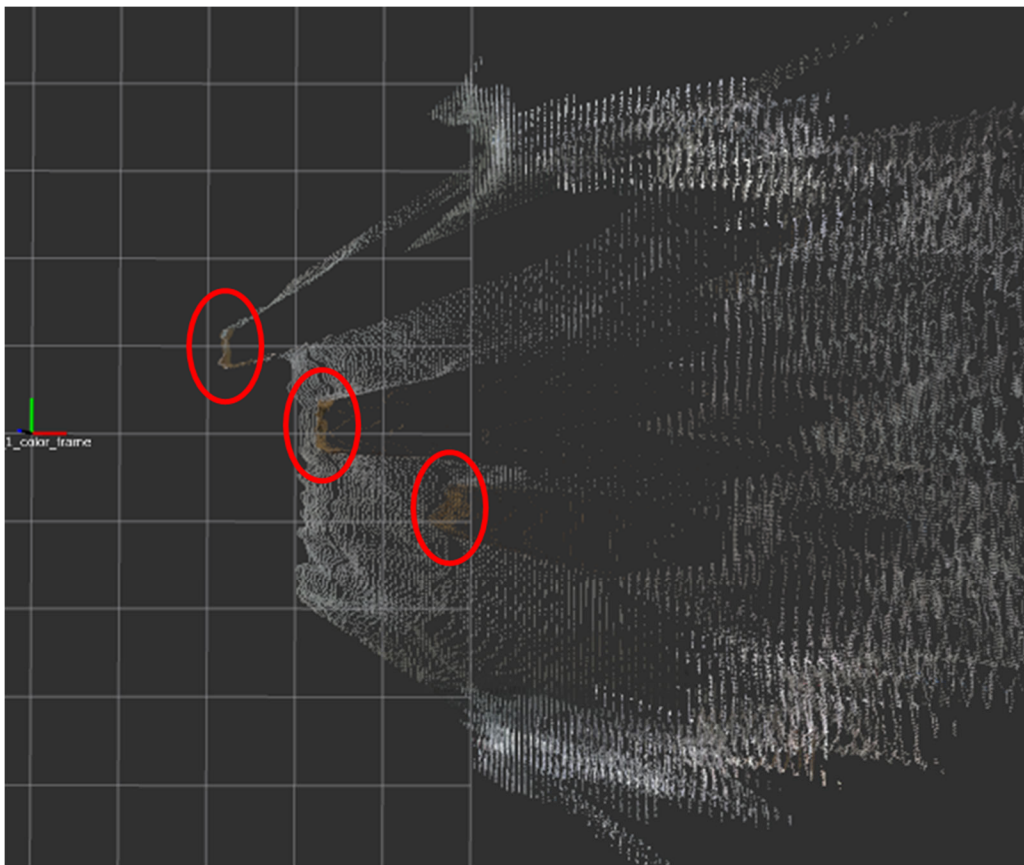
*Supplementary Material*

**Supplementary Table. Cost of off-the-shelf equipment for use in the IMU-Vision system<sup>a</sup>**

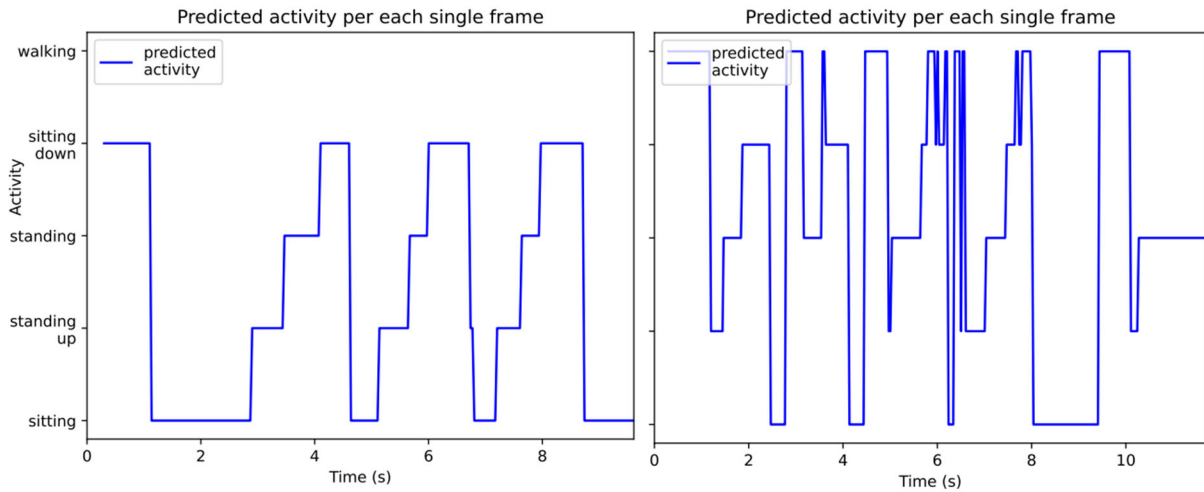
<b>Equipment</b>	<b>num. units</b>	<b>unit price</b>	<b>total cost</b>
Workstation TS P360 Tiny	1	\$1,550.00	\$1,550.00
Intel RealSense D455 cameras	2	\$419.00	\$838.00
Camera tripods	2	\$20.00	\$40.00
Xsens (4 IMU + base station + straps)	1	\$2,736.00	\$2,736.00
Camera cables	2	\$35.99	\$71.98
SSD hard drive	1	\$253.99	\$253.99
16 TB hard drive	2	\$313.60	\$627.20
64 GB memory card	1	\$16.79	\$16.79
Raspberry 4	1	\$70.00	\$70.00
Raspberry Pi cellular modem kit	1	\$135.00	\$135.00
<b>Total</b>			<b>\$6,338.96</b>

<sup>a</sup>IMU = inertial measurement unit.

The image in supplementary figure 1A is an aerial view of 3 flat objects (brown pixels) facing the camera (marked by the coordinates origin) and located at different distances from the camera. Whereas the leftmost (and closest) object has a relatively constant depth, the further objects have more distorted depth measurements. To illustrate the consequences of more noisy depth measurements, supplementary figure 1B shows a comparison between 2 sit-to-stand activity plots of 2 participants who performed the tests at different distances from the camera.



**Supplementary Figure 1A.** An aerial view of the depth map of 3 flat objects (brown pixels) facing the RealSense camera (marked by the red and green axes) at different distances. The further the object is from the camera, the noisier its measured depth is.



**Supplementary Figure 1B.** Comparison of 2 sit-to-stand activity plots. The participant from the left plot performed the test within the depth range suggested by the manufacturer, whereas the participant from the right plot performed the test at a much further distance from the camera.