HOOD – HUMAN ODOMETRY OUTDOOR DATASET: USER MANUAL

MOTIONS

Slow walk	Normal walk	Run
Average frequency: 25 steps/min	Average frequency: 50 steps/min	Average frequency: 75 steps/min
Slow crawl	**Fast crawl**	**Slither**
Average frequency: 20 steps/min	Average frequency: 40 steps/min	Average frequency: 18 steps/min

ENVIRONMENTS
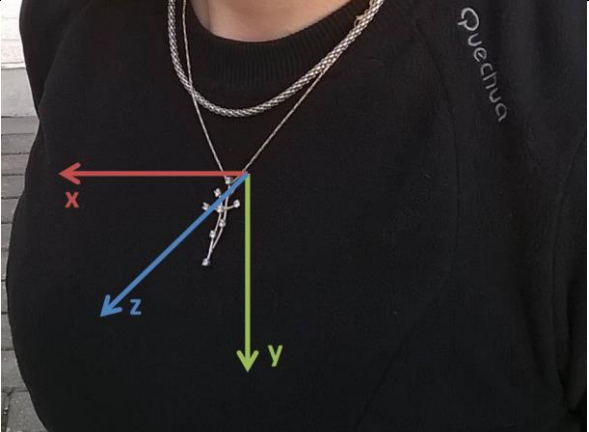
Grass field	Uphill road	Staircase
River bed	**Woods**	**Snow**

PATH TYPES

The reported path types refer to the "grass field" environment and are to be taken as a reference for the paths followed in all other environments.

Straight line	Zig-zag
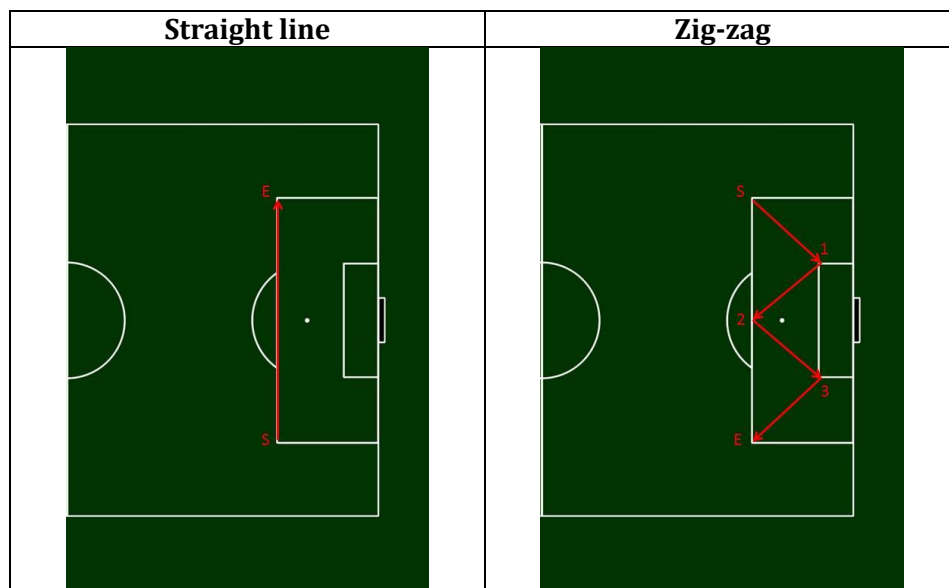
SENSOR PLACEMENTS

Foot	Waist
- x axis directed toward the right foot - y axis directed toward the ground - z axis directed forward	- x axis directed toward the right tight - y axis directed toward the ground - z axis directed forward
Wrist	**Chest**
- x axis directed opposite of the left hand - y axis directed toward the middle finger - z axis perpendicular to the hand plane	- x axis directed toward the right arm - y axis directed toward the ground - z axis directed forward

ATTRIBUTE INFORMATION

Each file in the dataset follows the following naming convention:

t[N]

where

- [N]:   trial ID defined in the section DATASET

Each record of a file reports:

- acceleration along the x axis of the accelerometer
- acceleration along the y axis of the accelerometer
- acceleration along the z axis of the accelerometer
- angular velocity about the x axis of the gyroscope
- angular velocity about the y axis of the gyroscope
- angular velocity about the z axis of the gyroscope

DATASET – GRASS FIELD

Activity	Metronome settings	Sensor placement	Path type	# steps	Trial ID
Slow walk	50 beats = 25 steps per minute	Foot	Straight line	39	t01
			Zig-zag	56	t02
		Waist	Straight line	38	t03
			Zig-zag	55	t04
		Wrist	Straight line	34	t05
			Zig-zag	50	t06
		Chest	Straight line	36	t07
			Zig-zag	48	t08
Normal walk	100 beats = 50 steps per minute	Foot	Straight line	31	t09
			Zig-zag	42	t10
		Waist	Straight line	30	t11
			Zig-zag	42	t12
		Wrist	Straight line	30	t13
			Zig-zag	42	t14
		Chest	Straight line	30	t15
			Zig-zag	43	t16
Run	150 beats = 75 steps per minute	Foot	Straight line	25	t17
			Zig-zag	34	t18
		Waist	Straight line	24	t19
			Zig-zag	35	t20
		Wrist	Straight line	22	t21
			Zig-zag	34	t22
		Chest	Straight line	23	t23
			Zig-zag	32	t24
Slow crawl	40 beats = 20 steps per minute	Foot	Straight line	27	t25
			Zig-zag	36	t26
		Waist	Straight line	23	t27
			Zig-zag	33	t28
		Wrist	Straight line	22	t29
			Zig-zag	32	t30
		Chest	Straight line	24	t31
			Zig-zag	33	t32
Fast crawl	80 beats = 40 steps per minute	Foot	Straight line	24	t33
			Zig-zag	36	t34
		Waist	Straight line	23	t35
			Zig-zag	36	t36
		Wrist	Straight line	24	t37
			Zig-zag	35	t38
		Chest	Straight line	24	t39
			Zig-zag	36	t40
Slither	36 beats = 18 steps per minute	Foot	Straight line	9	t41
			Zig-zag	13	t42
		Waist	Straight line	8	t43
			Zig-zag	16	t44
		Wrist	Straight line	12	t45
			Zig-zag	17	t46
		Chest	Straight line	10	t47
			Zig-zag	17	t48

DATASET – UPHILL ROAD

Activity	Metronome settings	Sensor placement	Path type	# steps	Trial ID
Slow walk	50 beats = 25 steps per minute	Foot	Straight line	23	t101
			Zig-zag	30	t102
		Waist	Straight line	23	t103
			Zig-zag	30	t104
		Wrist	Straight line	23	t105
			Zig-zag	26	t106
		Chest	Straight line	20	t107
			Zig-zag	26.5	t108
Normal walk	100 beats = 50 steps per minute	Foot	Straight line	21	t109
			Zig-zag	31	t110
		Waist	Straight line	21.5	t111
			Zig-zag	27	t112
		Wrist	Straight line	23	t113
			Zig-zag	29	t114
		Chest	Straight line	21	t115
			Zig-zag	26	t116
Run	150 beats = 75 steps per minute	Foot	Straight line	22	t117
			Zig-zag	28	t118
		Waist	Straight line	20	t119
			Zig-zag	23	t120
		Wrist	Straight line	21	t121
			Zig-zag	27	t122
		Chest	Straight line	18	t123
			Zig-zag	24	t124

DATASET – STAIRCASE

Activity	Metronome settings	Sensor placement	Path type	# steps	Trial ID
Slow walk	50 beats = 25 steps per minute	Foot	Straight line	14	t201
			Zig-zag	25	t202
		Waist	Straight line	14	t203
			Zig-zag	24	t204
		Wrist	Straight line	14	t205
			Zig-zag	25	t206
		Chest	Straight line	14	t207
			Zig-zag	25	t208
Normal walk	100 beats = 50 steps per minute	Foot	Straight line	14	t209
			Zig-zag	25	t210
		Waist	Straight line	14.5	t211
			Zig-zag	24	t212
		Wrist	Straight line	14	t213
			Zig-zag	25	t214
		Chest	Straight line	14.5	t215
			Zig-zag	25	t216
Run	150 beats = 75 steps per minute	Foot	Straight line	27	t217
			Zig-zag	27	t218
		Waist	Straight line	25	t219
			Zig-zag	28	t220
		Wrist	Straight line	27	t221
			Zig-zag	28.5	t222
		Chest	Straight line	25.5	t223
			Zig-zag	28	t224

DATASET – RIVER BED

Activity	Metronome settings	Sensor placement	Path type	# steps	Trial ID
Slow walk	50 beats = 25 steps per minute	Foot	Straight line	20	t301
			Zig-zag	29	t302
		Waist	Straight line	16.5	t303
			Zig-zag	26	t304
		Wrist	Straight line	18	t305
			Zig-zag	24	t306
		Chest	Straight line	17	t307
			Zig-zag	30	t308
Normal walk	100 beats = 50 steps per minute	Foot	Straight line	17	t309
			Zig-zag	25	t310
		Waist	Straight line	16	t311
			Zig-zag	27	t312
		Wrist	Straight line	16	t313
			Zig-zag	26	t314
		Chest	Straight line	16	t315
			Zig-zag	26	t316
Run	150 beats = 75 steps per minute	Foot	Straight line	19	t317
			Zig-zag	32	t318
		Waist	Straight line	16	t319
			Zig-zag	25	t320
		Wrist	Straight line	16	t321
			Zig-zag	25	t322
		Chest	Straight line	15	t323
			Zig-zag	24	t324

DATASET – WOODS

Activity	Metronome settings	Sensor placement	Path type	# steps	Trial ID
Slow walk	50 beats = 25 steps per minute	Foot	Straight line	14	t401
			Zig-zag	20.5	t402
		Waist	Straight line	15	t403
			Zig-zag	22	t404
		Wrist	Straight line	12	t405
			Zig-zag	17.5	t406
		Chest	Straight line	14	t407
			Zig-zag	19	t408
Normal walk	100 beats = 50 steps per minute	Foot	Straight line	17.5	t409
			Zig-zag	24	t410
		Waist	Straight line	17	t411
			Zig-zag	27	t412
		Wrist	Straight line	15	t413
			Zig-zag	22	t414
		Chest	Straight line	16	t415
			Zig-zag	25	t416
Run	150 beats = 75 steps per minute	Foot	Straight line	17.5	t417
			Zig-zag	29	t418
		Waist	Straight line	17	t419
			Zig-zag	24	t420
		Wrist	Straight line	19	t421
			Zig-zag	23	t422
		Chest	Straight line	16	t423
			Zig-zag	25	t424

DATASET – SNOW

Activity	Metronome settings	Sensor placement	Path type	# steps	Trial ID
Slow walk	50 beats = 25 steps per minute	Foot	Straight line	10	t501
			Zig-zag	15	t502
		Waist	Straight line	9	t503
			Zig-zag	11	t504
		Wrist	Straight line	9	t505
			Zig-zag	12	t506
		Chest	Straight line	10	t507
			Zig-zag	14	t508
Normal walk	100 beats = 50 steps per minute	Foot	Straight line	10	t509
			Zig-zag	12	t510
		Waist	Straight line	10	t511
			Zig-zag	14	t512
		Wrist	Straight line	11	t513
			Zig-zag	14.5	t514
		Chest	Straight line	11	t515
			Zig-zag	15	t516
Run	150 beats = 75 steps per minute	Foot	Straight line	9	t517
			Zig-zag	14	t518
		Waist	Straight line	10	t519
			Zig-zag	15	t520
		Wrist	Straight line	12	t521
			Zig-zag	17	t522
		Chest	Straight line	11	t523
			Zig-zag	16	t524