

## Sensing Checklist for Studies in the Wild

### Top Priorities (Mantras)

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| <ul style="list-style-type: none"> <li>• Minimize participant burden</li> <li>• Monitor subject compliance and offer feedback</li> </ul> | <ul style="list-style-type: none"> <li>• Provide assistance for troubleshooting</li> <li>• Confer with subjects about sensors early</li> </ul> |
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### Pre-study Planning (Sensor Survey)

#### ***Signals of Interest***

- Sensors capture target signals of interest
- Expected data quality is high enough for future analysis

#### ***Data Properties and Quality (per sensor)***

- Sufficient sampling rate
- Adequate SNR
- High accuracy and precision
- Minimal measurement drift
- Access to raw data
- Access to preprocessed data
- Versatility

#### ***Data Access Logistics***

- Easy data upload process
- Have process for aggregation of data onto research server

#### ***Sensor Synergy***

- Redundancy in signal measurement (if desired)
- Can use one sensor instead of two?

#### ***Additional Costs***

- Installation tools
- Replacement sensors and/or parts
- Service fees

#### ***Sensor Criteria***

- Cost
- Battery life
- OS support (Android/iOS, Windows/macOS)
- Robustness (physical design, software including firmware, app, server side)
- Versatility for achieving multiple objectives
- Provider support
- Privacy (anonymized data, secure transfer)

#### ***Ethics***

- Sensors meet *CORE* criteria
- Study benefits apply to subject population
- Data transfer and storage are secure
- Only relevant data is collected
- Participants understand how data is used

#### ***Participant Engagement***

- Support staff readiness (trained, can help with sizing/fitting)
- Cohort technical literacy (with training)
- Participant acceptance of sensors (fashionability, minimal interference)
- Minimal sensor demands (participant time, attention/cognition)

### Pilot Study (Sensor Testing)

#### ***Preparations***

- Study site preparation (infrastructural needs, supplemental tools/devices)
- Sensor data monitoring and reporting (data presence, data quality)
- Support staff availability

#### ***Testing***

- Participant acceptance (data collection protocol, sensor devices)
- Data monitoring system functions as intended

### Main Study (Data Collection)

#### ***Maintenance and Support***

- Maintenance plan for sensor failure
- Monitoring data streams (presence, quality)
- Providing participant feedback (compliance, incentive progress)
- Support staff scheduling