Alice's camera/visual data $\rightarrow$ Extract motion from video data $\rightarrow$ Alice's expected IMU data

Bob $\rightarrow$ Alice

③ created a temporary identifier for a user that can be used for communication.

②

If you see this motion, delete me

3-5 seconds
cancel out all reflections and only get reflections from the moving human.

\[ h'x = h_1 x + h_2 (-h_1 h_2^{-1}) x \]

\[ x' = -h_1 h_2^{-1} x \]
When user moves, received signal ≠ 0

[Diagram showing signal reception and processing]

Red + Blue = Black signal.

FMCW = Freq. modulated continuous wave.
\[ \frac{\sin f_{10}}{\sin f_5} \begin{pmatrix} \frac{f_{10} + f_5}{\text{freq}} \end{pmatrix} \]

\begin{align*}
\tan \theta &= \frac{f_{10} - f_5}{T} \\
\end{align*}

\[ T \]
4 Liquid

\[ T_{\text{liquid}} = T_{\text{air}} - T_{\text{air - wire}} - T_{\text{liquid - wire}} = T_{\text{air - liquid}} \]
Farm Beats