



Fig. S1—Laboratory experiment setup in the NIOSH hemi-anechoic chamber.



Fig. S2—Field evaluation setup at a mining face in the studied underground metal mine.

Table S1—Contribution of the different types of operation and external microphones to the overall accuracy of the app.

Factors	<i>F</i>	σ	Partial η^2	Observed power ^a
Operation	25.504	<0.001	.586	0.997
External microphone	45.187	<0.001	.715	1.000
Distance	27.040	<0.001	.600	1.000

a. Computed using alpha = .05.

Table S2—Pair-wise comparisons of the app accuracy between each pair of distances measured in the laboratory test.

Distance (<i>I</i>) (meters)	Distance (<i>J</i>) (meters)	Mean difference (<i>I</i> – <i>J</i>) (dB)	σ	95% CI	
				Lower	Upper
1.7	2.4	–0.068	1.000	–0.356	0.221
	3.4	–1.249	0.000	–1.897	–0.601
	4.8	–0.812	0.000	–1.239	–0.386
2.4	3.4	–1.182	0.000	–1.816	–0.547
	4.8	–0.745	0.000	–1.150	–0.340
3.4	4.8	0.437	0.031	0.030	0.844