CLAIMS

What is claimed is:

1. An apparatus comprising:

one or more sensors;

a communication device; and

a processing device operatively coupled to the one or more sensors and the communication device and configured to

receive an acoustic waveform from the one or more sensors,

compare the acoustic waveform to a predetermined threshold to determine if the predetermined threshold has been exceeded,

upon determining that the predetermined threshold has been exceeded, remove a section of the acoustic waveform that exceeds the threshold and rejoin the waveform, and

detect a discontinuity in the acoustic waveform at a position of the removed section;

upon detecting the discontinuity, perform a wave smoothing operation to smooth the discontinuity in the acoustic waveform, and

upon rejoining the acoustic waveform, transmit data regarding the acoustic waveform to a host via the communication device, the host configured to detect a leak in a fluid distribution system based on the data regarding the acoustic waveform.

2. The apparatus of claim 1, where the predetermined threshold comprises a value of difference in the acoustic waveform and a normal waveform without a presence of external noises.

3. The apparatus of claim 1, wherein the apparatus is coupled to a distribution main of the fluid distribution system.

4. The apparatus of claim 1, wherein the fluid distribution system comprises a water distribution system and the apparatus is coupled to a hydrant of the water distribution system.