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Source localization techniques for a moving target using phase difference between two acoustic beating envelopes

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We sometimes need to detect a moving target's position actively. Several methods have been proposed until now. In this paper, we proposed a simpler and cost saving method. We used several acoustic sensors to detect moving target's exact position actively. And especially acoustic waves which are higher than audio frequency were used to avoid unnecessary acoustic noises. In this case, higher frequency i.e., short wave length has difficulty to extract phase difference between two sensors when the distance of the two sensors is exceeding half of wave length. We applied beating signal which is composed of two close waves. The envelope of a beating signal whose wave length is longer than original's and the envelope's wave length is controllable. Use of beating signal's envelope gives us much advantages. For example, we are free from unnecessary acoustic noise by using higher frequency than audio frequency. Additionally, wave length is under control which means sensor position is not limited for the signal processing.

Biography

Choi Kyoung-Sik has received Master's degree from Chungnam National University, South Korea. He won "Best Paper Award of the Year 2011" from the ISA Transactions. He has been working as a Embedded Software Engineer from 12 years.

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