Title    Position Estimation Using Phase Difference of Electrode Array  
for Two-Dimensional (2D) Communication System  
Credit    6  
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Abstract

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Two-dimensional (2D) communication is a novel communication technology,  
which uses a sheet of special structure that allows a physical surface to propagate  
radio signals, and a coupler that is used to input / output radio signal. Furthermore, the  
2D communication technology can be applied for energy transmission by using high-  
power carrier waves, which can easily allocate a lot of sensors on the two dimensional  
sheet, and gather data from each node with high throughput.  

In this report, a position estimation method that uses the phase difference of  
input electrodes upon receiving pilot signal from device is proposed. The proposed  
method is described and evaluated by measuring the phase and power level of pilot  
signal, in which reflection does not occur. The accurate position information of  
devices can be applied to various location-specific multimedia applications in the 2D  
communication system. These applications have a very high possibility that people  
can explore interesting spots or items in more detail. It makes people have more  
comfortable lives.

Keyword: two-dimensional communication / position estimation / phase difference /  
pilot signal / carrier wave