

MRI-compatible surgical tool positioning device



- 3D Hall effect sensor allowing object tracking in MRI field
- Complete needle positioning device in development, other possible applications with the same electronics

KEYWORDS

3D Hall sensor
Microelectronics
CMOS

INVENTORS

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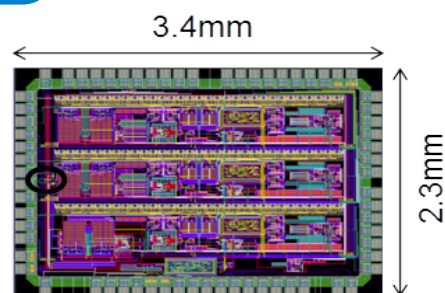
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TECHNOLOGY

A 3D Hall effect CMOS sensor has been designed to measure the magnetic field gradients inherent to the MRI.

This gradients can be seen as a graduation of space inside the MRI tunnel. By measuring them, we have shown that it is possible to compute in near real time, i.e. in 4ms, the position and orientation of the micro magnetometer with a submillimetric precision.



APPLICATIONS

- Interventional MRI : tracking of needle (cryotherapy, biopsy)
tracking of devices (robots, HIFU devices...)
- Functional MRI : head movement cancellation

ADVANTAGES

- Submillimetric positioning resolution
- Automatic positioning of MRI image in the tracked object plane
- Compact, lightweight and plug & play
- Operational advantages :
 - *The practitioner and the hospital save time on procedures and improve precision*
 - *Error risk is lowered*

DEVELOPMENT STATUS

- Know-how protection
- Development of a complete user-friendly needle positioning device (electronics + software + ergonomics)
- Test with phantom and animals to be done by internationally recognized interventional radiologist : Pr. Afshin Gangi, sponsor of the project

Partnership: Seeking partners for co-development or licensing

CONTACT

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