Ferrotilt - A New High Accuracy Tilt Measurement Sensor

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A new generation tilt sensor created in a totally new vision in order to accomplish the tasks where wide measurement range, high accuracy and simplicity required. By involving the most important requirements in one sensor our invention founded a new generation in the field of tilt measurement equipments. We made it our goal that the sensor developed by us should outperform the previous ferrofluidic and traditional tilt sensors in resolution and in measuring range. In our work, we invented a tilt sensor which uses ferrofluid to measure tilt. Ferrofluid is a liquid with ferromagnetic properties, it's like a "liquid metal", and it was invented by NASA. Our sensors consist of three coils and a ferrofluid core. We developed two variant of the sensor: one has an extremely high resolution – it's called the linear sensor – and the other has a virtually infinite measuring range – it's called the toroidal sensor. The proposed sensors do not contain moving parts, and the reaction time can be reduced using lower viscosity ferrofluids. The sensor's resolution is extremely high, and the measuring range could be extended to 360°. In this way, our sensor can widely be used in industrial applications, for example in me dical robots or airplanes

Awards Won:

Fourth Award of $500