Magnetic field sensors overview and example application in Helmet Mounted Cueing System.

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Magnetic field sensors, due to their accuracy and today's micro-size [1], are becoming increasingly popular. This article includes information about magnetic field sensors and their selected applications in aviation [2]. In article have been discussed difficulties associated with magnetic, helicopter pilot, head position monitoring system, including not homogeneity of magnetic field, dependence of geographic location and flight altitude, mineral deposits occurring in the ground and the time of a day on geomagnetic field induction [3].

Particular attention was paid to the use of magnetic sensors in control of onboard systems in helicopters. There has been described developed in Air Force Institute of Technology (AFIT) innovation Helmet Mounted Cueing System (HMCS) with prototype and laboratory version of , pilot head position monitoring system – Figure 1a). In the detailed part there is more about avionic implementation of magnetic phenomena and Helmet Mounted Cueing Systems. The results of laboratory tests using a flat coil are presented – Figure 1b).
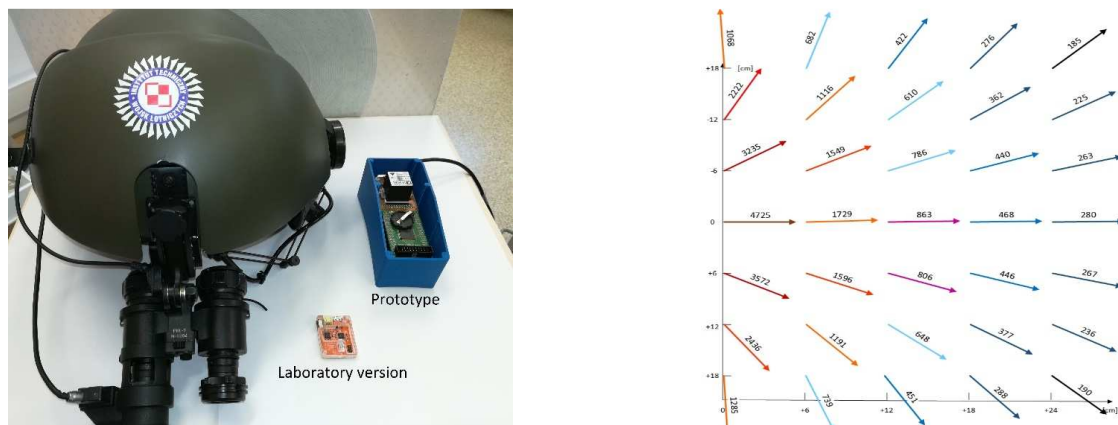

Figure 1. Showing from left: a) prototype and laboratory version of Helmet Mounted Cueing System developed by AFIT (in the back flat coil); b) distribution of the magnetic field near the flat coil (The values on the arrows are in [mT]).

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[2] C. Rush, Helmet display in aviation. Design issues for rotary-wing aircraft, Fort Rucker   1998.

[3] Tumański S. Właściwości transduktorowych mierników słabych pól magnetycznych. Rozpr. Elektr., 32, 1986.