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(54) Title: SENSOR ARRAY, SYSTEMS AND METHODS FOR BUILDING A MAGNETIC MAP, AND FOR LOCALIZING A MOBILE DEVICE BASED ON A MAGNETIC MAP

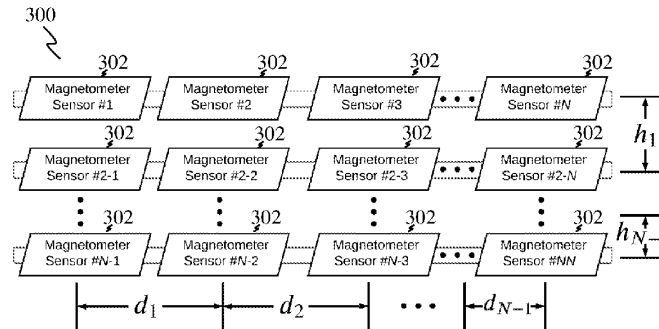


FIG. 3A

(57) Abstract: According to embodiments of the present invention, a sensor array is provided. The sensor array includes a plurality of magnetic field sensors configured to operate substantially simultaneously for building a magnetic map representative of an environment. Each magnetic field sensor may be configured to measure an ambient magnetic field at a position of the magnetic field sensor, the position being within the environment or within a working distance of the magnetic field sensor from an edge boundary of the environment. Each magnetic field sensor may be arranged spaced apart from a neighbouring magnetic field sensor at a distance such that the respective ambient magnetic fields measured by the magnetic field sensor and the neighbouring magnetic field sensor are disambiguated. According to further embodiments of the present invention, a magnetic map as well as systems and methods for building a magnetic map and for localizing a mobile device are also provided.

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