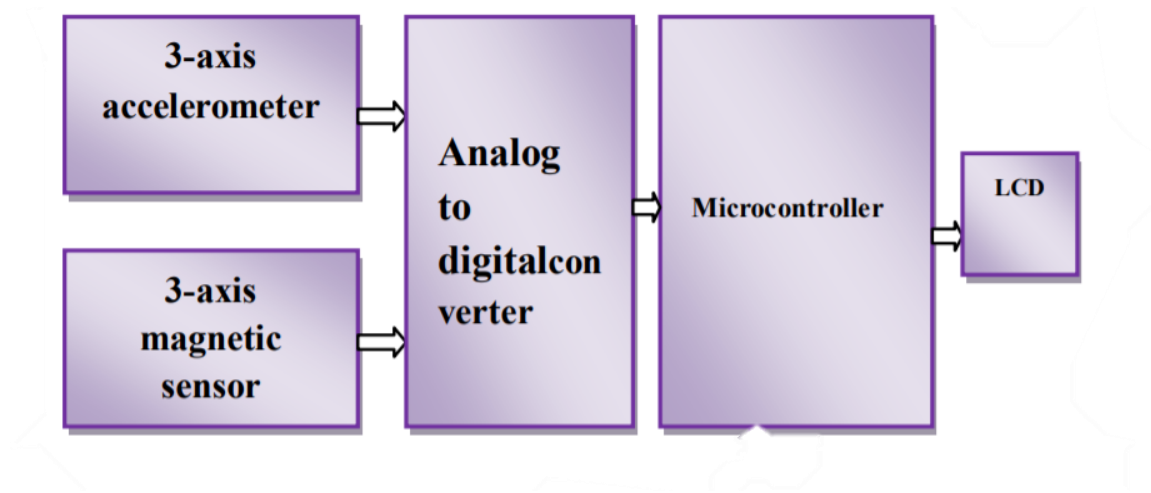


Digital Compass

Abstract:

As information gathering becomes critical to a new information based economy, it is vital to have the tools necessary to collect information about our environment. One key environmental aspect to location awareness and geospatial data gathering is one's bearing within a frame of reference. Orientation and bearing are key to understanding our location and interpreting data from that environment. The most reliable and reproducible form of determining orientation is through measurement of Earth's magnetic field. With accuracy and precision being of utmost importance, it is crucial to implement a magnetic compass through digital equivalents to produce increased precision, accuracy and reducibility. As navigation and orientation becomes necessary in a new information age, it is vital to have a precise and accurate digital compass. The primary function of the compass would be for navigation and orientation. This device has numerous markets it can be manufactured for. In a consumer market, it would be an indispensable aide for hikers, sailors, and for other outdoor activities where navigation is necessary. A digital compass also has viable market necessity in commercial and military application where such application require embedded sensors to determine a broader picture of the surrounding environment. Example of such parallel application are automotive, aerospace, satellite and troop management and movement.

Block Diagram:



Future Scope:

With the magnetic sensors becoming cheaper and almost all smart phones having accelerometer, many of them these days can run a digital compass. An example is the Iphone. This takes smart phones to another new level, making them a traveller's or an adventurer's aid. Since smart phones have GPS, it can also be used. This is a new rage in the smart phone market these days. Also highly accurate and precise standalone compass units which use other sophisticated method of measuring the Earth's magnetic field can be used for navigation of ships and aircrafts.

Conclusion:

A low cost digital compass application requires mid-level design experience. Application requirements are the driving factors behind the level at which it is developed. Some of these factors include accuracy, speed, features and size.