EM-A: Electromagnetic Anemometer With Dynamic Sensitivity

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Throughout history, wind has held great importance for humanity. Accurately measuring its speed and direction plays a vital role in fields such as agriculture, navigation, meteorology, and aviation. Devices developed for this purpose are called anemometers. Although there are various types, such as ultrasonic, hot-wire, pitot-tube, and propeller anemometers, these existing models possess certain disadvantages. In our project, we aimed to develop an entirely new anemometer that overcomes common issues in current types, such as dynamic range, narrow measurement range, and high cost. To test our theory, we first conducted simulations, followed by the production of a prototype and laboratory experiments. Consequently, we successfully developed an electromagnetic-based anemometer that works by charging incoming air molecules, applying a magnetic field, and measuring the resulting potential difference through a data acquisition board we designed.

Awards Won:

Second Award of $2,400