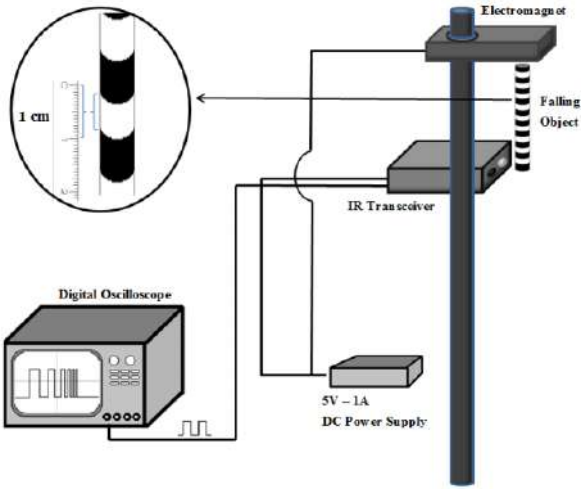
METHOD AND APPARATUS FOR ACCURATE MEASUREMENT OF *g*

THE INVENTION

The invention is a new method and an apparatus to accurately determine the value of acceleration due to gravity (g) at any specific point on earth. The value of g is a highly sensitive factor and depends heavily on the geographical location where it is measured. The invention involves accurately measuring the free-fall time of a reference object through a pre-defined height using an infrared (IR) sensor. Using this measured free-fall time, a mathematical equation is formulated which can accurately provide a measure of the g factor.



Invention apparatus.

MARKET NEED

- The main application of this invention lies in the education sector, specifically the elementary and high schools where science/physics experiments are performed as part of the syllabus.
- In 2017 the global elementary and high school market was valued ay USD 1.4 Trillion with Asia Pacific accounting for the largest share of 42.9% of the global market.
- The global science schools increased at a CAGR of nearly 6%, with a global enrolment of 5.1 million pupils generating USD 49 billion in revenue.

COMPETITIVE ADVANTAGE

The main experimental method to determine the value of *g* involves the use of pendulums. The readings from this experiment are highly dependent on the characteristics of the pendulum and the free-hanging setup, which requires constant calibration. This invention does not require any calibration and can provide value of *g* without any variation.

PROJECT STATUS

The invention in its current state is at TRL 4; where the apparatus has been finalized and tested multiple times to accurately provide the value of *g*.

LOOKING FOR A DEVELOPMENT PARTNER

The experimental setup needs to be converted into a compact black-box that could be marketed as a standalone system.

PATENT PROTECTION

A patent US10012757 covers this technology and system.

ABOUT KFUPM

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