

**SOIL MOISTURE DETECTION**

by

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**ABSTRACT**

In agricultural technology, variety of tools has been created to help farmers make their agricultural activities and make a good crop. To get a good crop, one of the important things that should be there is land that has adequate fertilizer. Adequate fertilizer can help plants produce good yields and quantities, to meet the needs of a world that is increasingly rising in need of food and food production. To improve the quality and quantity of crops, measurement of N (nitrogen), P (phosphorous) and K (potassium) contents of soil is necessary to determine how much fertilizer is needed to add to the soil to increase crop fertility. This improves the quality of the soil which in turn yields a good quality crop. It also reduces the addition of undesired fertilizers of soil. The fiber optic sensor developed can identify the levels of NPK in the soil and then accordingly required fertilizers can be added to the soil. Fiber optic sensor is thus developed to detect the deficiency of the nutrients N, P or K in the soil. The sensor is fabricated which has concentric arrangement of source and receiving fibers. It is based on the colorimetric principle where absorption of light by a solution results in variation in the output of the sensor.

The system thus designed is advantageous as it reduces the undesired use of fertilizers to be added in the soil. One can properly select the fertilizer quantity to be used for reducing the deficiency in the soil at a particular field. Fiber optic sensors are widely used in various industrial applications as well as in agriculture etc for their inherent advantages such as light weight, immunity to EMI and RFI, economical etc.