**RUN AUTOMATIONS**

**SMART SOIL MAPPING AND FARMING DATA ACQUISITION DEVICE**

This technology addresses the issue of inefficiency of data collection in the agricultural sector in the Ugandan economy to support decision making by the farmers. While farming in African environments has a major advantage of abundant sunshine, both in intensity and duration, a sufficient amount of rainfall and rich nutrients in the soil to support various crops, the rate at which such information is used for the advance of the agricultural decision making process in determining farming practices has been low. The major cause of this has been lack of an affordable and easy to access tools to gather this data and provide it in real time to farmers and to support agricultural organizations to facilitate this process. Our team has implemented a hybrid on and off grid device with several autonomous sensors to capture this data. We have kept track of soil water levels, soil nutrient levels, sunshine duration, air pressure, wind speed and other diagnostic data. This information is collected on a centralized cloud server with an artificial intelligence algorithm to determine the crops that grow best in given farming areas and regions to establish an “**e-soilmap**”. The e-soilmap can be used by various agricultural organizations to help farmers in sensitization about the best crops to grow in a particular region. This also enables better budgeting for the agricultural sector. The device also supports smart irrigation to save on water consumption depending on the soil moisture readings taken from the sensors hence making it easy to deploy and monitor irrigation schemes in remote places to facilitate increased production of crops and farm yields. This information is presented real time on a hosted web platform and a mobile app and is also presented in SMS format which can support decision making by the farmers.

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