VISVESVARAYA TECHNOLOGICAL UNIVERSITY
"Jnana Sangama" Belagavi – 590 010

PROJECT REPORT ON
"IoT BASED AUTOMATED AEROPONICS SYSTEM FOR ROOT VEGETABLES"

Submitted in partial fulfillment of the requirements for the award of degree.

BACHELOR OF ENGINEERING
IN
CIVIL ENGINEERING

Submitted By

OMIN LONCHUNG	4AL18CV028
WANGLEN WAIKHOM	4AL18CV048
MELLORY THOUDAM	4AL19CV019
MOHAMMED ZISHAN C M	4AL19CV020

Under the Guidance of
Dr.H.G.Umeshchandra
Associate Professor
Department of Civil Engineering

ALVA'S
Education Foundation

DEPARTMENT OF CIVIL ENGINEERING

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

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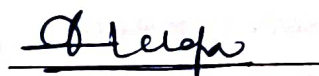### (Affiliated to VTU, BELAGAVI)
DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE

Certified that the project work entitled "IoT BASED AUTOMATED AEROPONICS SYSTEM FOR ROOT VEGETABLES" is a bonafide work carried out by

OMIN LONCHUNG	**4AL18CV028**
WANGLEN WAIKHOM	**4AL18CV048**
MELLORY THOUDAM	**4AL19CV019**
MOHAMMED ZISHAN C M	**4AL19CV020**

in partial fulfillment for the award of Bachelor of Engineering in civil engineering of **Visvesvaraya Technological University, Belagavi** during the academic year 2022-2023, it is certified that all corrections and suggestions indicated for internal assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirement in respect of the project work prescribed for the said degree.
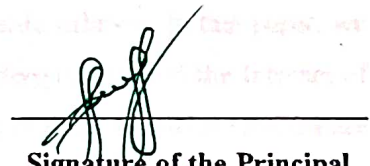
Signature of the Guide
Dr. H.G.Umeshchandra Alva's
Associate Professor

Dept of Civil Engineering
Signature of the H.O.D
g & Technology
Dr. H Ajith Hebbar

Signature of the Principal
PRINCIPAL
Dr. Peter Fernandes
Alva's Institute of Engg. & Technology,
Mijar, MOODBIDRI - 574 225, D.K

EXTERNAL VIVA

Name of the Examiners

Signature with date

1. Surendra.P

2. Swapna. S.A

ABSTRACT

The scarcity of clean water resources around the globe has generated a need for their optimum utilization. IoT-based automation brings a solution, based on the application-specific sensor's data acquisition and intelligent processing, bridging the gaps between the digital and physical worlds. IoT-based smart irrigation systems can help in achievingoptimum water-resource utilization in the precision farming landscape. This project presents an IoT-based automated aeroponics system designed specifically for root vegetables. The system utilizes sensors to monitor environmental conditions such as temperature, humidity, and automated controls to ensure optimal growing conditions for the plants. The aeroponic system provides an efficient method for growing root vegetables, with benefits such as increased yields & reduced water usage. Additionally, the IoT connectivity allows for remote monitoring and control of the system, enabling farmers to manage and adjust the growing conditions from anywhere. This report outlines the design and implementation of the system, as well as the results of testing and evaluation. The findings suggest that the IoT-based automated aeroponics system for root vegetables is a promising solution for sustainable and efficient agriculture.

Agriculture plays a consequential role in the economy and its contribution is predicated on quantifiable crop yield which is highly dependent upon irrigation. In a country like India, where agriculture is largely predicated on the unorganized sector, irrigation techniques and patterns followed are inefficient and often lead to nonessential wastage of water. This calls for the desideratum of a system that can provide an efficient and deployable solution. In this paper, we provide an Automatic Irrigation System predicated on Artificial Perspicacity and the Internet of Things, which can autonomously irrigate the plant's roots directly utilizing humidity temperature data. The system has been tested in a controlled environment wian 80 percent precision, thus providing an efficient solution to the quandary.

Keywords: - IoT (Internet of things), Automated, Smart Irrigation, Agriculture, Humidity, Temperature, Root vegetables.