VISVESVARAYA TECHNOLOGICAL UNIVERSITY,

BELAGAVI

A PROJECT REPORT ON

"IoT AND WEB-BASED REAL-TIME ASSISTING SYSTEM FOR DETECTING CARDIAC ARRHYTHMIA"

Submitted in partial fulfillment for the award of Degree of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE & ENGINEERING

By

YESHASWINI R	4AL20CS173
MAHAMMED JAMEER GHORI	4AL21CS400
NANDINI MADNE K	4AL21CS402
PRASHANTH K	4AL21CS403

Under the Guidance of

Mr. Prashanth Kumar

Assistant Professor

ALVA'S

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MOODBIDRI-574225, KARNATAKA

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ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MIJAR, MOODBIDRI D.K. -574225, KARNATAKA

ALVA'S
Education Foundation

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

CERTIFICATE

This is to certify that the project entitled **"IoT AND WEB-BASED REAL-TIME ASSISTING SYSTEM FOR DETECTING CARDIAC ARRHYTHMIA"** has been successfully completed by

YESHASWINI R	**4AL20CS173**
MAHAMMED JAMEER GHORI	**4AL21CS400**
NANDINI MADNE K	**4AL21CS402**
PRASHANTH K	**4AL21CS403**

the bonafide students of **DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING, ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2023–24. It is certified that all corrections/suggestions indicated for Internal Assessmenthave been incorporated in the report deposited in the departmental library. The project reporthas been approved as it satisfies the academic requirements in respect of Project work prescribedfor the Bachelor of Engineering Degree.

Mr. Prashanth Kumar
Project Guide

Dr. Manjunath Kotari
Head Of the Department

Head of the Department
Dept. of Computer Science & Engineering
Alva's Institute of Engineering and Technology
Mijar, Moodubidire - 574 225, D.K. Karnataka, India

Dr. Peter Fernandes
Principal

PRINCIPAL
Alva's Institute of Engg. & Technology,
Mijar, MOODBIDRI - 574 225, D.K.

External Viva

Name of the Examiner	Signature with Date
1. Dr. Manjunath Kotari	
2. Shreejith.K.S	

ABSTRACT

Hydroponic farming has emerged as a promising technique for sustainable agriculture, offering efficient resource utilization and high yields. However, disease outbreaks pose significant threats to crop health and productivity in hydroponic systems. This paper proposes a comprehensive approach for the detection and prediction of diseases in hydroponic farming to ensure sustainable production practices.

Firstly, the detection phase utilizes advanced sensing technologies such as image processing, spectroscopy, and IoT sensors to monitor various parameters including plant morphology, spectral signatures, and environmental conditions. Machine learning algorithms are employed for real-time analysis of sensor data to identify early signs of disease symptoms. Secondly, the prediction phase employs predictive analytics models to forecast disease outbreaks based on historical data, environmental factors, and crop health indicators. Time-series analysis, regression models, and deep learning techniques are utilized to generate accurate forecasts of disease occurrences, enabling proactive management strategies.

Furthermore, a decision support system is developed to integrate detection and prediction results, providing actionable insights for farmers to implement timely interventions such as targeted treatments, optimized nutrient management, and preventive measures. The proposed approach offers a proactive and data-driven framework for disease management in hydroponic farming, facilitating sustainable agricultural practices by minimizing crop losses, reducing pesticide usage, and enhancing overall productivity. Implementation of this system holds the potential to revolutionize disease control strategies in hydroponic agriculture, promoting long-term environmental sustainability and food security.