PROPOSAL REPORT

DESIGN AND DEVELOPMENT OF IOT BASED PORTABLE BIOMEDICAL KIT FOR HEPATITIS AND JAUNDICE

Submitted by

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B.E, 6th semester

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BONAFIDE CERTIFICATE

Certified that this proposal report **" DESIGN AND DEVELOPMENT OF IOT BASED PORTABLE BIOMEDICAL KIT FOR HEPATITIS AND JAUNDICE "** is submitted by *Mr.V.m.Santhosh kumar*, *Mr.S.Sakthivel* , *Mr.P.Rohith.*

We certify to read and follow the guidelines prescribed by the University during and after implementation of the project.

SIGNATURE OF STUDENTS

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Mr.P.Rohith

SIGNATURE OF MENTOR

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Dr.P.Anbalagan

RECOMMENDED BY HOD / DIRECTOR

PROJECT DETAILS

OBJECTIVES

- To design light weight, economical and portable biomedical kit.
- Identify and understand the significance of abnormal sample components.
- To avoid clinical authorization for testing purpose.
- Identification of ailments for clients at risk of developing hepatitis/jaundice.
- To provide healthy diet plans to the clients after diagnosis.

INTRODUCTION

The liver has the entirety to do with how we stay, this is why it is referred as liver. The kingdom of your liver may have a huge bearing upon how nicely you stay, how long you may stay and the way you will appear and feel. In ultra-modern world, the liver has to exert more difficult than ever before, and everywhere in the world we find that liver issues are growing. Globally, one in each ten individuals suffers with a few form of liver, bile duct or gall bladder ailment. 350 million humans global suffer from hepatitis B which kills greater than 2 million annually. Hepatitis C is the maximum hastily spreading infectious ailment. Jaundice remains I among cases admitted into the special care baby unit in developing nations. Approximately 60% of newborns develop jaundice and science appeared in within 48hours of birth. A WHO study found that an estimated 4.5 million premature deaths could be prevented in low- and middle-income countries by 2030 through vaccination, diagnostic tests, medicines and education campaigns. WHO's global hepatitis strategy, endorsed by all WHO Member States, aims to reduce new hepatitis infections by 90% and deaths by 65% between 2016 and 2030. Global coverage dropped from 86% in 2019 to 83% in 2020. An estimated 23 million children under the age of one year did not receive basic vaccines, which is the highest number since 2009. In 2020, the number of completely unvaccinated children increased by 3.4 million. Only 19 vaccine introductions were reported in 2020, less than half of any year in the past two decades. 1.6 million more girls were not fully protected against human papillomavirus (HPV) in 2020, compared to the previous year This device helps to examine those diseases anytime anywhere portably.

LITERATURE SURVEY

Hepatitis global estimated infection with hepatitis about 1.5 billion people's per year. Nearly half of (49%) had no symptoms prior to analysis. One in five (21%) sufferers had been recognized in health center almost one-third (32%) had been diagnosed during other tests. 50% had been recognized after they already had symptoms and one out of 5 of these have been recognized during emergency situations. In 2019 WHO estimated 2.90 lack people were died in hepatitis. Around 62% of peoples had been treated with hepatitis. Another 38%of people they don't know how to test the disease. 59% of people did now not experience

that they were given sufficient facts at prognosis almost 4 out of ten (39%) sufferers waited for greater than six months for experts advice.

A quarter (24%) of patients have been extremely glad with their care and one in 10 (10%) people had been extraordinarily unhappy. Nine out of ten humans attempted to discover more after leaving their health center appointment with over 90%. The study of population comprised 74% of women about 90% where treated in hepatitis. Where treatment experienced. The major of hepatitis where completer without side effects. The common of alcoholic hepatitis is yellowing skin and whites of eyes. In 87% of cases diagnosis was conformed at operation or pathological examinations, awareness of pre-diagnosis as been lately decreased in numbers. One in five was wrongly diagnosed as viral hepatitis.

PROPOSED WORK WITH METHODOLOGY

Close the switch connection Now the Battery supply current to Converter. Supply voltage is converted into components operating voltage level. Converter supply voltage to thermostat and IOT device. Thermostat is connected with the heating pad in the bottom of isothermal case in which the sample is placed. Heating pad heats the sample in the cuvette at preset temperature suitable for isothermal amplification. On exceeding suitable temperature, temperature sensor alerts the thermostat which cutoff the connection to heating pad. Source lamp connected using switch gets supply from converter. Sample absorbs the light from the source and emits the color according to which the molecules present in the sample. Color sensor detects the light emitted by the sample and feeds the value to IOT device. IOT device process the information received from sensor and decide the result according to the program fed to it.

IMPLEMENTATION

HARDWARE	SPECIFICATION
Battery	12V,10000mAh
Recharging circuit	10V
Switch	Push Button
DC-DC converter	12V-5V
Matlab Software	R2022a
Arduino	Nano 33IOT
Color sensor	TCS3200,2.5V
Source lamp	-

Heating pad	5V
Thermostat	W1209,12V
Temperature sensors	DS18B20,3V
Bread Board	-
Cuvette	-
Connecting Wires	-
Miscellaneous	-

WORK PLAN

TASK	MONTH 1	MONTH 2	MONTH 3	MONTH 4	MONTH 5
Survey					
Hardware Purchase					
Development of code for IOT					
Software testing					
Simulation testing					
Hardware assembly					
Hardware testing					
Sample collection					
Device testing					
Project Submission					

EXPECTED OUTCOME / RESULTS

1. Display of molecular composition of sample on connected smart devices.
2. Computation of diseases from sample composition.

3. Presenting healthy diet plan for diagnosed disease.

APPLICATIONS

1. It is used in primary hospitals, clinics, etc,.for faster and precise determination of ailment.
2. It is used in office and home for ailment pre-diagnosis and recognition.
3. It can be used at any place with your samples onboard.

CONCLUSION

The purpose of this device was to identify liver diseases. Samples are processed immediately and gives the results instantly with accuracy. Over recent years access to self testing kits has been expanding. These kits are likely to generate additional primary care consultation and make the user more aware of the health.

REFERENCES

1. https://www.sciencedirect.com/book/9781437717259/handbook-of-liver-disease
2. https://www.arduino.cc/
3. https://www.sciencedirect.com/science/article/pii/S2214180419301539
4. https://pubmed.ncbi.nlm.nih.gov/19649586/

FINANCIAL ASSISTANCE	
HEAD	**AMOUNT(Rs.)**
Material / Fabrication / Component	17000
Travel	4000
Contingency	2000
Consumables	2000
Others	0

TOTAL	**25000**

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