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We hereby declare that we have checked this thesis and, in our opinion, this thesis is adequate in terms of scope and quality for the award of the degree of Bachelor Degree of Engineering Technology (Hons.) (Electrical)

_____

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Full Name :

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I hereby declare that the work in this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Malaysia Pahang or any other institutions.

(Student's Signature)

Full Name : RENUGA SUBARMANIAM

ID Number : TG18026

Date : 09/02/2022

DEVELOPMENT OF GAS DETECTION AND DATABASE SYSTEM ON CUPPING PRACTICE

RENUGA SUBARMANIAM

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ABSTRAK

Terapi Bekam adalah satu teknik yang melibatkan penggunaan cermin mata bekam untuk melancarkan perjalanan darah dalam badan. Prosedur bekam memerlukan penggunaan cawan dan alat sedutan untuk mengeluarkan udara dari cawan, mengakibatkan tekanan negatif di dalam cawan yang menarik kulit dan tisu subkutan. Bekam kering dan basah adalah dua jenis bekam yang utama. Peranti yang mengesan kehadiran atau kepekatan gas di atmosfera dikenali sebagai "sensor gas." Sensor ini menghasilkan perbezaan potensi yang sesuai berdasarkan kepekatan gas dengan menukar rintangan bahan di dalam sensor, yang boleh dikesan sebagai voltan keluaran. Semasa proses bekam, cawan yang melekat pada badan pesakit akan bertindak sebagai vakum yang akan menyedut oksigen di dalam cawan. Dalam proses penyedutan, gas akan terhasil di dalam cawan. Bagaimanapun, gas yang dihasilkan di dalam cawan tersebut berpotensi merbahaya kepada pengamal perubatan semasa sesi terapi. Selain itu, pemantauan gas yang dikeluarkan daripada cawan boleh digunakan untuk menunjukkan tahap kesihatan pesakit. Sistem pangkalan data harus dibangunkan untuk menyimpan rekod status kesihatan pesakit. Objektif utama projek ini adalah untuk membangunkan mekanisme pengesanan gas, sistem pangkalan data gas bekam, dan akhirnya menguji sistem bekam kering dan basah. Pertama, pengamal penjagaan kesihatan akan memasukkan butiran pesakit ke dalam sistem. Selepas itu, sistem akan membaca input. Jika tidak, sistem akan membaca semula maklumat pesakit, dan jika ya, sistem akan menghantar data ke pangkalan data. Perkakasan terdiri daripada "ruang gas" yang memerangkap gas semasa proses bekam dan empat Sensor yang digunakan ialah MQ7 (Carbon Monoxide Gas Sensor), MQ5 (Carbon Dioxide Gas Sensor), MQ135 (Ammonia Gas Sensor) dan MQ131 (Nitric Oxide Gas Sensor).) diletakkan di dalam ruang gas. Sebelum memulakan bacaan sensor, GUI (Antara Muka Pengguna Berpandu) telah dibangunkan. GUI akan diprogramkan menggunakan Visual Code Studio dengan menggunakan kod Phyton. Semua data pesakit akan disimpan dalam pangkalan data, iaitu PhpMyAdmin sebagai I-Cloud. Pengawal mikro Wi-Fi Arduino Uno digunakan untuk menyampaikan maklumat kepada penderia iaitu MQ5, MQ7, MQ135 dan MQ131. Untuk semua data bacaan sensor, mesti dibangunkan menjadi aplikasi iaitu BLYNK. Ia adalah aplikasi untuk menunjukkan dan menghantar bacaan penderia ke GUI (Antara Muka Pengguna Berpandu). Untuk simulasi mekanisme, program yang digunakan ialah AUTOCAD. Keputusan yang diperolehi akan disiasat dan dibincangkan dalam tesis ini.

ABSTRACT

Cupping Therapy is a technique that involves the use of cupping glasses to smooth the blood's journey in the body. The cupping procedure requires the use of a cup and a suction device to remove air from the cup, resulting in a negative pressure inside the cup that attracts the skin and subcutaneous tissue. Dry and wet cupping are the two main types of cupping. A device that detects the presence or concentration of a gas in the atmosphere is known as a "gas sensor." This sensor produces an appropriate potential difference based on the gas concentration by changing the resistance of the material inside the sensor, which can be detected as the output voltage. During the cupping process, the cup attached to the patient's body will act as a vacuum that will inhale the oxygen inside the cup. In the process of inhalation, a gas will be produced in the cup. However, the gas produced in the cup has the potential to be dangerous for medical practitioners during therapy sessions. Moreover, monitoring of the gas released from the cup can be used to indicate the patient's level of health. A database system should be developed to keep a record of a patient's health status. The main objectives of this project are to develop a gas detection mechanism, a cupping gas database system, and finally test the dry and wet cupping systems. First, the healthcare practitioner will enter the patient's details into the system. After that, the system will read the input. If not, the system will read the patient information again, and if so, the system will send the data to the database. The hardware consists of a "gas chamber" that traps gas during the cupping process and four Sensors used are MQ7 (Carbon Monoxide Gas Sensor), MQ5 (Carbon Dioxide Gas Sensor), MQ135 (Ammonia Gas Sensor) and MQ131 (Nitric Oxide Gas Sensor) placed in the gas chamber. Before starting sensor reading, a GUI (Guided User Interface) was developed. The GUI will be programmed using Visual Code Studio by using Phyton codes. All patient data will be stored in a database, which is PhpMyAdmin as I-Cloud. The Arduino Uno Wi-Fi microcontroller is used to convey information to the sensors, namely the MQ5, MQ7, MQ135 and MQ131. For all the sensor reading data, must be developed into an application, namely BLYNK. It's an app to show and send the sensor reading to GUI (Guided User Interface). For the simulation of the mechanism, the programme used is AUTOCAD. The results obtained will be investigated and discussed in this thesis.

TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

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