"Moving Mosquito Coils"

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March 2020

1 Introduction

This document is to explain requirements, solution and future improvements of "Moving Mosquito Coils", an Arduino based embedded system project.

2 Requirements

A machine to carry a mosquito coil around the room is required. Absence of human beings is recommended in the room because mosquito coils are harmful to several human organs.

3 Solution

The human burns the mosquito coil, put it in the steel holder, which can reduce the risk of fire, and switch on the machine. After it, the human can safely leave the room. When the LM35 temperature sensor ,which is put at the end of burning coil, detects the fire, the machine will stop. The process of moving a burning mosquito coil in the room is successfully completed.

The following functions are performed.

1. First of all, the user puts a burning mosquito coil in a safe box made by steel to prevent fire and turn on the machine.
2. The car avoids obstacles and moves around the room back and forth. Two HC-SR04 ultrasonic sensors are used to avoid obstacles.
3. The LM35 temperature sensor is placed in the center of the coil to know whether the coil has burned completely or not.
4. Two relays are connected to the same line with LED lights. They are normally closed and open when there is a high voltage in the line.
5. Two blue LED lights are used to attract mosquitoes.
6. A flame sensor and a buzzer is added to detect fire.

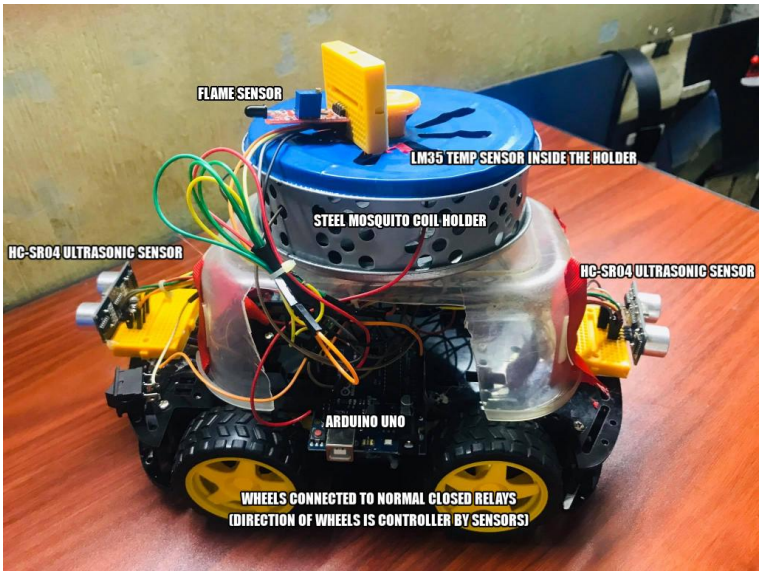

Figure 1: An image of moving mosquito coils system

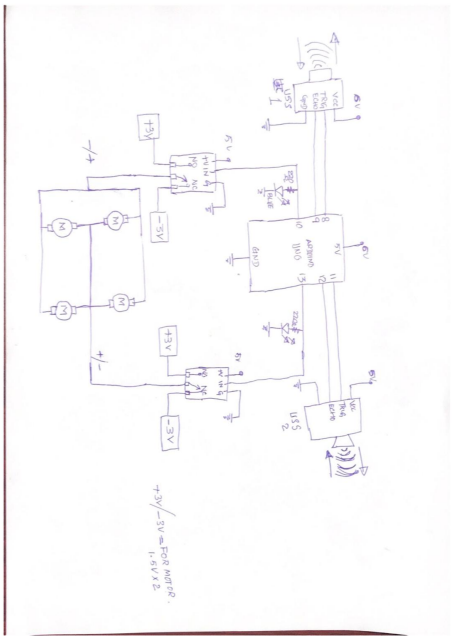

Figure 2: An image of draft circuit diagram

4 Future improvements

The following improvements can be made.

1. A photoresistor can be added to encourage the device to move around in a darker place because mosquitoes hide in there more.
2. The Arduino board can be connected to back-end web server using Johnny-five JavaScript platform.
3. After connecting with backend, the user can remotely control ON/OFF fo Arduino board, check the status of burning coil and temperature.