DomusBot

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# ***Control the status of your home with your smartphone***

**OBJECT:**

Create a system that checks the status of the fixtures and monitoring the temperature/humidity of your home, through interaction with a Bot Telegram.

**ABSTRACT:**

We want to allow anyone to know the dynamics that happens in their own home.

We thought to use a MKR1000 connected to the home WiFi, which interacts with the users through a bot telegram.

The main functions we have decided to implement are the temperature and humidity monitoring in your home and control the opening and closing windows.

**THE IDEA:**

We thought it would be useful to know by a simple Telegram Bot the state of the home. Because in addition to being a convenient and effective tool, it can also increases the safety of the house and of ourselves, because we can be aware, when you are out if there are open windows “or if perhaps we have forgotten the gas on.”

**WHAT WE USED:**

1x MKR1000

1x DHT22 (temperature / humidity sensor)

1x buttons

x2 Resistance (10k)

x1 LCD Hitachi

**BOT**

The Bot was developed on Telegram with @BotFather.

Its main functions are two:

* Communicate user request the actual temperature of the house.
* Notify the opening or closing of windows.

The Bot is connected to MKR1000 through the implementation of the Telegram library for Arduino, that allows you to receive requests, process them, and send data to the Bot.

**TEMPERATURE/HUMIDITY**

To monitor the temperature we decided to notify only on user request via BOT Telegram.

This way you can know at any time the temperature in your home.

**WINDOWS**

For the window control we thought of using a magnetic sensor placed on the two windows ashes.

In this way it will be possible to know the time when the two sensors are in contact or not, and the opening and closing of the window.

**WORK PROCESS**

We started from the hardware part, we have putted on the breadboard the window-button, and the DHT22 (Humidity/Temperature sensor). We have tried only with the Arduino software if they both functioned.

After that we create the Telegram Bot, with Bot Father, we putted in 2 buttons: Humididty and Temperature.

Then we have connected the Arduino Code with the Bot, using the Telegram library for Arduino. We maked a cicle that controls if there are request from the user, when he note a request it responds with the actual temperature. For the window-button instead we decide to notify everytime the button is pushed, so everytime the window is opened or closed.

**DESIGN**

We decided to make a box for our system, made with wood and cutted by a laser cut machine.

We also thought that sometimes the users want to see his system or change something in it, so we have putted a top cover that you can open.

**WHY OUR PROJECT IS IMPORTANT?**

Our project is very important, just because having used a MKR1000 can transmit data not only on the PC screen, but it can notify you everytime and anywhere you are, as long as there is an active internet connection.

**CODE**

**#include <WiFi101.h>**

**#include <SPI.h>**

**#include <TelegramBot.h>**

**#include "DHT.h"**

**#include <ArduinoJson.h>**

**#include<WiFiSSLClient.h>**

**#include <LiquidCrystal.h>**

**#define DHTPIN 6**

**#define DHTTYPE DHT22**

**LiquidCrystal lcd(12, 11, 5, 4, 3, 2);**

**int brightnessPin = 10;**

**int brightnessValue = 100;**

**const char BotToken[] = "174631339:AAFz0D6gr2U2rSiHpR3X1uvfQoK3XccBlaU";**

**const char BotName[] = "Domusbot";**

**const char BotUsername[] = "Domusbot\_bot";**

**char ssid[] = "FablabTorinoHome"; // your network SSID (name)**

**char pass[] = "Fablab.Torino!!"; // your network key**

**const int buttonPin = 9; // the number of the pushbutton pin**

**int buttonState = 0;**

**DHT dht(DHTPIN, DHTTYPE);**

**WiFiSSLClient client;**

**TelegramBot bot (BotToken, BotName, BotUsername, client);**

**TelegramKeyboard keyboard\_one;**

**int chat\_id\_1=138780798;**

**int chat\_id\_2=175593403;**

**void setup() {**

**// put your setup code here, to run once:**

**Serial.begin(9600);**

**delay(3000);**

**pinMode(buttonPin, INPUT);**

**pinMode(brightnessPin, INPUT);**

**lcd.begin(16, 2);**

**//lcd.print("@DomusBot");**

**// attempt to connect to Wifi network:**

**Serial.print("Connecting Wifi: ");**

**Serial.println(ssid);**

**while (WiFi.begin(ssid, pass) != WL\_CONNECTED) {**

**Serial.print(".");**

**delay(500);**

**}**

**Serial.println("");**

**Serial.println("WiFi connected");**

**const char\* row\_one[] = {"Temp", "Humidity"};**

**keyboard\_one.addRow(row\_one, 2);**

**bot.begin();**

**dht.begin();**

**}**

**void loop() {**

**analogWrite(brightnessPin, brightnessValue);**

**lcd.setCursor(0, 1);**

**buttonState = digitalRead(buttonPin);**

**// put your main code here, to run repeatedly:**

**message m = bot.getUpdates(); // Read new messages**

**if ( m.chat\_id != 0 && m.text.equals("Temp")){ // Checks if there are some updates**

**String testo = String(getTemp());**

**Serial.println(testo);**

**//lcd.print("T: "+testo+"°C");**

**Serial.println(m.chat\_id);**

**bot.sendMessage(m.chat\_id, testo+" °C", keyboard\_one, false, true); // Reply to the same chat with the same text**

**}**

**else if( m.chat\_id != 0 && m.text.equals("Humidity")){ // Checks if there are some updates**

**String testo = String(getHumidity());**

**Serial.println(testo);**

**//lcd.print("H: "+testo+"%");**

**bot.sendMessage(m.chat\_id, testo+" %", keyboard\_one, false, true);**

**}**

**else {**

**Serial.println("funziona!");**

**}**

**if (buttonState == HIGH) {**

**bot.sendMessage(chat\_id\_1, "Finestra aperta!!");**

**bot.sendMessage(chat\_id\_2, "Finestra aperta!!");**

**}**

**//Temperature**

**String te = String(getTemp());**

**String hu = String(getHumidity());**

**lcd.setCursor(0, 0);**

**lcd.print(" T = "+te+" °C ");**

**lcd.setCursor(0, 1);**

**lcd.print(" H = "+hu+" % ");**

**}**

**float getTemp() {**

**float t = dht.readTemperature();**

**if ( isnan(t) ) {**

**Serial.println("Failed to read from DHT sensor!");**

**}**

**return t;**

**}**

**float getHumidity() {**

**float h = dht.readHumidity();**

**if ( isnan(h) ) {**

**Serial.println("Failed to read from DHT sensor!");**

**}**

**return h;**

**}**

**FRITZING**

**///////////////////////////////////////**

**// INSERIRE FRITZING //**

**//////////////////////////////////////**

**FILE LASERATI**

**/////////////////////////////////////////////////**

**// INSERIRE FILE LASERATI //**

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**PHOTOSHOOT**

**/////////////////////////////////////////////////**

**// INSERIRE PHOTOSHOOT//**

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