

Initialize WiFi credentials and sensor pin assignments

Initialize light and fan pin assignments and states

Initialize DHT sensor and WiFi server

Initialize other variables for tracking state and timing

Setup:

Begin Serial communication

Set light and fan pins as output and turn them off

Set sensor pins as input

Start WiFi access point

Print IP address

Begin DHT sensor

Start the WiFi server

Loop:

Check for a client connection to the server

If a client is connected:

Record the current time and reset the previous time

Print a message indicating a new client connection

Initialize an empty string for the current line

While the client is connected and timeout has not occurred:

If the client has sent data:

Read the data

Print the data to Serial

Append the data to the header string

If a newline character is received:

If the current line is empty (end of HTTP request):

Send the HTTP response header

Call sendHTML function to send the HTML page

If the mode is manual:

If the header contains "GET /light/on":

Turn on the light and update lightstate

Else if the header contains "GET /light/off":

Turn off the light and update lightstate

If the header contains "GET /fan/on":

Turn on the fan and update fanstate

Else if the header contains "GET /fan/off":

Turn off the fan and update fanstate

If the header contains "GET /mode/manual":

Set the mode to manual

Else if the header contains "GET /mode/auto":

Set the mode to auto

Break out of the loop

Else:

Clear the current line

Else if the character is not a carriage return:

Append the character to the current line

Clear the header string

Stop the client connection

Print a message indicating the client disconnected

If the mode is auto:

Call automode function

sendHTML Function:

Send the HTML structure to the client

Send the CSS styles

Send the body content and buttons for controlling light, fan, and mode

Update the button labels and styles based on current states (lightstate, fanstate, mode)

automode Function:

Delay for 2 seconds

Read the proximity sensor

If proximity sensor is triggered:

Toggle the userin state

If userin is true:

Delay for 2 seconds

Read temperature from DHT sensor

Read darkness sensor

If temperature exceeds templim1:

Turn on the fan and update fanstate

Else if temperature is below templim2:

Turn off the fan and update fanstate

If it is dark:

Turn on the light and update lightstate

Else:

Turn off the light and update lightstate

Else (userin is false):

Turn off the light and fan

Update lightstate and fanstate