EXPERIMENT NUMBER - 9 EXPERIMENT NAME - LCD INTERFACING USING ROSPBERRY PI DATE - 22/12/2022, THURSDAY

* AIM;

To interface LCD madule with Rapperry Pi.

INTEGRATED XVELOPMENT ENVIRONMENT: (IDT)

Name - Thinny 4.0.1 Publisher - Airan Annamaa support link - Attps: Il thanny . dag

+ IMPORT NECESSARY UBRARIES:

(sudo pip install adafauit-ircuitpython-charled)

1 Import time, provides various time-related functions.

@ Import board, implements a general-purpose board structure which

has the functionality needed per a range of purposes.

D'Import digitalio, contains classes to provide access to basic digital

(B) Import adapruit_character_lcd.character_lcd as characterlcd, module for interfacing with monochromatic character 100s

(a) Hello World Display as LCD (GPFO) &

Algorithm -

O Metro mo/Mr Pin Config

@ Initialise the LID class

1 Turn backlight ON.

4 Print a two line message.

1 Wait for some time.

1 Clear the LCO.

-> PYTHON CODE import time import board import digitalio import adaphuit-character_lcd. character_lcd as characterlcd

madify this if you have a different sized character up: led-columns = 16; led-2000 = 2

lcd_As = digitatio. Digital In Rut (baard DT) lcci en = digitalio. Digital In aut (baard. D5) lcd-d4 = digitalio. Digital In Out (board 09) lcd - d5 = digitalio . Digital In Out (board DIO) lcd-db = digitalio. Digital In aut (board. DI) led-d1 = digitalio. Digital Indut (band. D12) led-backlight = digitalio · Digital Inlut (board · D13)

Ocd = characterled character_ LCD_ Mano (led_1s, ecd_en, lcd_d4, lcd_d5, led-db, led-d1, led-columns, led-rows, led-backlight) lcd. backlight = Time

lcd message = " Hello in Circuit Python time. sleep (5)

lcd. clear ()

(b) Display Scrolling Tent on LCD:

ALGORITHM -

1 Metro Mo/M4 Pin Config

O Initialise the 40 Class

3 Turn backlight ON.

Print a two line message.

Wait for some time. (Clear the 110.

Turn backlight OFF.

- FUNCTIONALITIES -

1 Print message right to left.

@ Phint message left to right.

@ True if cursor is visible.

@ Tane to blink the unser.

O Create message to scroll.

· Scrall message to left

· more displayed text left one

PYTHON CODE import time
import beard
import digitatio
invort adafmit-charater-led charater-led as characterled

Madify this if you have a different sized character LiD:-

lcd- No = digitalio · Digital InQut (board · DT)

lcd- en = digitalio · Digital InQut (board · DS)

lcd- dt = digitalio · Digital InQut (board · D9)

led- d5 = digitalio · Digital InQut (board · D10)

led - db = cligitalio · Digital In Out (board · DII)

la - d1 = digitalio. Digital Indut (baard. DD)

lod - backlight = digitalio Digital mont (beard DI3)

led = characterled. character - Leo_ Mone (led-1s, led-en, lett-dt, led-d5, led-d6, led-d7, led-columns, led-rows, led-backlight)

led-backlight = Thue

lat message = "Hello In Circuit Python" time . sleep (5) lat. clear()

lcd. tent_direction = lcd. RIGHT_TO_LEFT

lcd. message = "Hello in Circuit Python"

time. sleep 15)

lcd. clear()

lcd. tent_direction = lcd. IEFT_D. RIGHT lcd. message = "Hello in lincuit Pythin" time. sleep (5) lcd. clear()

lcd. cursor = True led merlige - "Curson!" time sleep (5) lad dearl)

led blink = Thre ecd message = "Blinky Cursor !" time . sleep (5) Lcd. blink = False ecd. cleat ()

scrale-mg = "<-- Scroll" ecd. mesage = scrall-msg

for i in range (len (scroll-mgg)): time. sleep (0.5) ecd. more-left()

lcd. clear()

lcd. message = "Going to sleep in (ya later!" time sleep (3) ecd backlight = False

time sleep (2)

(1) Assignment - There is a digital board installed in a smart restaurant. Read in numbers of today's special food items as input through keyboard. sirall through the read foods one by one on LCD for customer's new.

-> ALGORITHM -

O metro mofort Pin config.

Initialise the LCD class.

Turn backlight ON.

Print a message. wair for some time. @ scroll message to the left. · wait for half a second. o mare displayed text loft and

Edluma

Pythen Code
inpert time

import cligitalio

import adafruit-character-led character-led as characterled

import adafruit-character-led character-led as characterled

**Madify this if you have a different sized character 110:
led-columns = 16: led. Nows = 2

Led-ns = digitalio. Digital Indut (board. DI)

Led-en = digitalio. Digital Indut (board. DS)

led-dt = digitalio. Digital Indut (board. DS)

led-d5 = digitalio. Digital Indut (board. DIO)

led-d6 = digitalio. Digital Indut (board. DIO)

led-d7 = digitalio. Digital Indut (board. DIO)

lcd = characterlcd. character - 110 - Mano (lcd-rs, lcd-en, lcd-a4, lcd-d5, lcd-d6, lcd-d7, lcd-columns, lcd-nows, lcd-backlight)

led. backlight = Thue

led. message = "Welcome!"

time. sleep (5)

led. clear ()

Ica - backlight = digitalio . Digital In Out (baard D13)

n = int (input ("Enter n value; "))
faod_items = []

for i in range (n):

item = str (input ("lanter food item: "))

food_items. append (item)

time. sleep ()

paint (food-items [i])

Scrale message to the left: for j in range (len (food-items (1))):
time sleep (0.5)
led. more_left()
led clear()

time sleg (3) led boiklight = False time . slegs(2)

* RESULT:

Thus, interfaced 100 madule with Raspberry Pi°. All the simulation results were verified successfully.

