#include <Keypad.h>

#include <DS3232RTC.h>

#include "LCD.h"

#include "LiquidCrystal\_I2C.h"

LiquidCrystal\_I2C lcd(0x27, 2, 1, 0, 4, 5, 6, 7, 3, POSITIVE);

const byte ROWS = 4;

const byte COLS = 4;

char keys[ROWS][COLS] = {

{'1','2','3','='},

{'4','5','6','C'},

{'7','8','9','-'},

{'\*','0','#','+'}

};

byte rowPins[ROWS] = {2, 3, 4, 5};

byte colPins[COLS] = {6, 7, 8, 9};

Keypad kpd = Keypad(makeKeymap(keys), rowPins, colPins, ROWS, COLS);

void setup() {

lcd.begin(16,2);

setSyncProvider(RTC.get); // Library function to get the time from the RTC module.

lcd.setCursor(0,0); lcd.print(" JAM DIGITAL ");

lcd.setCursor(0,1); lcd.print(" MURAHAN ");

delay(2000);

lcd.clear();

}

int modeGanti= 0;

int modeWaktu= 0;

int ctrJam= 0,

ctrMenit= 0,

ctrDetik= 0;

int modeTanggal= 0;

int ctrHari= 0,

ctrBulan= 0,

ctrTahun= 0;

String jam= "hh",

menit= "Mn Mn",

detik= "SS",

waktu= "DAY";

String hari= "dd",

bulan= "mm",

tahun= "yyyy",

bln= "BLN";

String input1= "",

input2= "",

input3= "",

input4= "";

void loop() {

char key = kpd.getKey();

if (modeWaktu == 4) {

setRTCWaktu();

modeGanti= 0;

}

if (modeTanggal == 4) {

setRTCTanggal();

}

if (key == '\*') { //BUAT WAKTU

lcd.clear();

modeGanti= 1;

if (modeGanti == 1) {

modeWaktu++;

}

} else if (key == '#') { //BUAT TANGGAL

lcd.clear();

modeGanti= 2;

if (modeGanti == 2) {

modeTanggal++;

}

} else if (key == '1' || key == '2' || key == '3' ||

key == '4' || key == '5' || key == '6' ||

key == '7' || key == '8' || key == '9'){ //TEKAN ANGKA

if (modeGanti == 1) {

aturWaktu(key);

} else if (modeGanti == 2) {

aturBulan(key);

}

}

//RENDER

if (modeGanti == 0) { //TIMER JALAN

//setRTCAwal();

//lcd.setCursor(0, 0); lcd.print(String(hour())+":"+String(minute())+":"+String(second())+" GNT");

//lcd.setCursor(0, 1); lcd.print(String(day())+"/"+String(month())+"/"+String(month()));

lcd.setCursor(0, 0); lcd.print(jam+":"+menit+":"+detik+" GNT");

lcd.setCursor(0, 1); lcd.print(hari+"/"+bulan+"/"+tahun);

} else if (modeGanti == 1) {

lcd.setCursor(0, 0); lcd.print(jam+":"+menit+":"+detik+" GNT");

lcd.setCursor(0, 1); lcd.print(hari+"/"+bulan+"/"+tahun);

} else if (modeGanti == 2) {

lcd.setCursor(0, 0); lcd.print(jam+":"+menit+":"+detik);

lcd.setCursor(0, 1); lcd.print(hari+"/"+bulan+"/"+tahun+" GNT");

}

}

void aturWaktu(char key) {

if (modeWaktu == 1) {

if (ctrJam == 0) {

input1= String(key);

jam= "0"+input1;

ctrJam++;

} else if (ctrJam == 1){

input2= String(key);

jam= input1+input2;

ctrJam= 0;

}

} else if (modeWaktu == 2) {

if (ctrMenit == 0) {

input1= String(key);

menit= "0"+input1;

ctrMenit++;

} else if (ctrMenit == 1){

input2= String(key);

menit= input1+input2;

ctrMenit= 0;

}

} else if (modeWaktu == 3) {

if (ctrDetik == 0) {

input1= String(key);

detik= "0"+input1;

ctrDetik++;

} else if (ctrDetik == 1){

input2= String(key);

detik= input1+input2;

ctrDetik= 0;

}

}

}

void setRTCAwal() {

time\_t t1;

tmElements\_t tm1;

tm1.Hour= jam.toInt();

tm1.Minute= menit.toInt();

tm1.Second= detik.toInt();

tm1.Year= CalendarYrToTm(tahun.toInt());

tm1.Month= bulan.toInt();

tm1.Day= hari.toInt();

t1 = makeTime(tm1);

RTC.set(t1);

setTime(t1);

}

void setRTCWaktu() {

time\_t t;

tmElements\_t tm;

tm.Hour= jam.toInt();

tm.Minute= menit.toInt();

tm.Second= detik.toInt();

t = makeTime(tm);

RTC.set(t);

setTime(t);

}

void setRTCTanggal() {

time\_t t;

tmElements\_t tm;

tm.Year= CalendarYrToTm(tahun.toInt());

tm.Month= bulan.toInt();

tm.Day= hari.toInt();

t = makeTime(tm);

RTC.set(t);

setTime(t);

}

void aturBulan(char key) {

if (modeTanggal == 1) {

if (ctrHari == 0) {

input1= String(key);

hari= "0"+input1;

ctrHari++;

} else if (ctrHari == 1){

input2= String(key);

hari= input1+input2;

ctrHari= 0;

}

} else if (modeTanggal == 2) {

if (ctrBulan == 0) {

input1= String(key);

bulan= "0"+input1;

ctrBulan++;

} else if (ctrBulan == 1){

input2= String(key);

bulan= input1+input2;

ctrBulan= 0;

}

} else if (modeTanggal == 3) {

if (ctrTahun == 0) {

input1= String(key);

tahun= "yyy"+input1;

ctrTahun++;

} else if (ctrTahun == 1){

input2= String(key);

tahun= "yy"+input1+input2;

ctrTahun++;

} else if (ctrTahun == 2) {

input3= String(key);

tahun= "y"+input1+input2+input3;

ctrTahun++;

} else if (ctrTahun == 3) {

input4= String(key);

tahun= input1+input2+input3+input4;

ctrTahun= 0;

}

}

}

