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| **Department of Electronics and Communication Engineering**  **REVIEW – 5** | | |
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# PROBLEM STATEMENT

**Write a C pgm to demonstrate the concept of mailbox.Task1- Take data from serial port and save in mailbox . Task2-Take data from mailbox and display on LCD**

CODE:

#include <rtl.h> #include<stdio.h> #include<lpc214x.h>

#define SLAVE\_ADDR 78

#define MAX 12

#define AA 2

#define SI 3

#define STO 4

#define STA 5

#define I2EN 6

void init\_serial(void); void data(unsigned int); void LCD\_init (void);

void LCD\_Command(char); void I2C\_Init(void);

void delay\_ms(int);

os\_mbx\_declare (MsgBox, 100); /\* Declare an RTX mailbox 100 msgs with name MsgBox\*/

\_declare\_box(mpool,20,32); /\* Reserve a memory for 32 blocks of 20 bytes \*/ unsigned int cnt1,cnt2;

char arr1[20],arr2[20]; int i=0;

task void task2 (void);

task void task1 (void)

{

char str[] = {"HELLO"}; U32 \*mptr;

os\_tsk\_create (task2, 0);

os\_mbx\_init (MsgBox, sizeof(MsgBox));

mptr = \_alloc\_box (mpool); /\* Allocate a memory for the message \*/ while(1)

{

while(!(cnt1==15))

{

cnt1++; LCD\_String(str);

delay\_ms(65000);delay\_ms(65000);delay\_ms(65000); LCD\_Command(0x01);

sprintf(arr1,"counter1 :%d",cnt1); while (arr1[i] != '\0')

{ os\_dly\_wait(1);

while (!(U0LSR & 0x20)); U0THR = arr1[i];

LCD\_String(str); delay\_ms(65000);delay\_ms(65000);delay\_ms(65000); LCD\_Command(0x01);

i++;

} i=0;

while (!(U0LSR & 0x20)); U0THR = '\n';

os\_dly\_wait(5);

}

if (cnt1==15)

{

mptr[0] = cnt1; cnt1=0;

os\_mbx\_send (MsgBox, mptr, 0xffff); /\* Send the count value to a 'Mailbox' \*/

os\_dly\_wait(100);

LCD\_String(str);

delay\_ms(65000);delay\_ms(65000);delay\_ms(65000); LCD\_Command(0x01);

}

}

}

task void task2 (void)

{

char str[] = {"WORLD"}; U32 \*rptr ;

cnt2=0;

while(1)

{

os\_mbx\_wait (MsgBox, (void\*)&rptr, 0xffff);

cnt2 = rptr[0]; /\* copy the count value from task1 to cnt2 \*/ while (!(U0LSR & 0x20));

U0THR = arr1[i];

while(!(cnt2==30))

{ while (!(U0LSR & 0x20));

U0THR = arr1[i];

cnt2++;

sprintf(arr2,"counter2 :%d",cnt2); os\_dly\_wait(2);

while (arr2[i] != '\0')

{

while (!(U0LSR & 0x20)); U0THR = arr2[i];

i++;

} i=0;

while (!(U0LSR & 0x20)); U0THR = '\n';

os\_dly\_wait(100);

}

cnt2=0;

}

}

int main (void)

{

init\_serial();

IODIR0 = 0xf0ff00fc; LCD\_init();

\_init\_box (mpool, sizeof(mpool), sizeof(U32)); os\_sys\_init(task1);

}

void init\_serial (void)

{

PINSEL0 = 0X0000005; // Enable RxD0 and TxD0 U0LCR = 0x83; // 8 bits, no Parity, 1 Stop bit

U0DLL = 0x61; // 9600 Baud Rate @ 15MHz VPB Clock

U0LCR = 0x03; // DLAB = 0

}

# IMPLEMENTATION



