Department of Electronics and Communication Engineering

RTOS Lab Review Report

Group-14

Name: Basagouda Patil 02FE21BEC016

Ekata Honnegundi 02FE21BEC033

Neela Saloni 02FE21BEC051

Rakshita Kusanale 02FE21BEC069

Problem Statement:

Write a C program to demonstrate the concept of mailbox using LPC2148

Task1-Take data from keypad and save in mailbox

Task2-Take data from mailbox and display on seven segment display

Code:

```c
#include <rtl.h>

#include<stdio.h>
#include<lpc214x.h>
void init_serial(void);
 os_mbx_declare (MsgBox, 100);
void delay(unsigned int);

unsigned int i;
 _declare_box(mpool,20,32

unsigned int cnt1,cnt2; char arr1[20],arr2[20];  unsigned int Disp[10] =
{0x003F0000, 0x00060000, 0x005B0000, 0x004F0000,

0x00660000,  0x006D0000, 0x007D0000, 0x00070000, 0x007F0000,

0x006F0000};

void sev(void);

__task void task2 (void);

__task void task1 (void)

 {
  /* This task will send a count value. */
  U32 *mptr;
os_tsk_create (task2,
0);

  os_mbx_init (MsgBox, sizeof(MsgBox));
  mptr = _alloc_box (mpool);

while(1)

 {

  while(!(cnt1==15))
```

```c
 {
cnt1++;
 sprintf(arr1,"counter1
:%d",cnt1);   while (arr1[i] !=
'\0') { os_dly_wait(1);   while
(!(U0LSR & 0x20));   U0THR =
arr1[i];  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);


}
s
e
v
(
)
;

   }



}

 void sev(void) {

IODIR0 |= 0x0FF0000;
   IOSET0 |= 0xF0000000;


   for (i = 0; i < 10; i++)
```

```
    {

       IOSET0 |= Disp[i];        delay(1000000);

IOCLR0 |= 0x00FF0000;

     }


}
 void delay(unsigned int j) {

unsigned int i;

   for (i = 0; i < j; i++);

}

__task void task2 (void)

{

 /* This task will receive a count. */

 U32
*rptr
;
cnt2=
0;
while
(1) {
os_mbx_wait (MsgBox, (void*)&rptr, 0xffff);      / Wait for the message to arrive. */

cnt2 = rptr[0];    /* copy the count value from task1 to cnt2  */


while(!(cnt2==30))

{ cnt2++;
sprintf(arr2,"counter2
:%d",cnt2); os_dly_wait(2);
while (arr2[i] != '\0')

{
```

```c
  while (!(U0LSR &
0x20));   U0THR =
arr2[i];  i++; }

i=0;  while (!(U0LSR &
0x20)); U0THR = '\n';
os_dly_wait(100);

 }

cnt2=0;

}
}

int main (void)

{
init_seri
al();
  _init_box (mpool, sizeof(mpool), sizeof(U32));   os_sys_init(task1);
}

void init_serial (void)

{
  PINSEL0 = 0X0000005;

  U0LCR = 0x83;

  U0DLL = 0x61;
 U0LCR = 0x03;
```

Implementation and Output: