```
/*
Joel Sepulveda Martins Turma da Noite BC
TURMA U
*/
#include <stdlib.h>
#include <time.h>

/*Free Rtos*/
#include "FreeRTOS.h"
#include "basic_io.h"
#include "task.h"

void TaskPrin(void *pvParameters);
void BatReg(void *pvParameters);
void OxiSat(void *pvParameters);
void MoniTemp(void *pvParameters);

void BatReg(void *pvParameters) {
  char outp[45];
  char *msg = (char *)pvParameters;
  // Defina a faixa desejada.
  int batimento;
  int minBatimento = 50;
  int maxBatimento = 140;
  for (;;) {
    int batimento = minBatimento + rand() % (maxBatimento - minBatimento + 1);

    sprintf(outp, "Batimento Do Paciente: %d\n", batimento);
    vPrintString(outp);

    vPrintString("\n");
    vPrintString("\n");

    vPrintString("\n");
    if (batimento < 50) {

      vPrintString("!!!Low heartbeat!!!");
      vPrintString("\n");
    }
    if (batimento > 90) {
      vPrintString("!!!High Heartbeat!!!");
      vPrintString("\n");
    }
    vTaskDelay(500);
  }

  vTaskDelete(NULL);
}

void TaskPrin(void *pvParameters) {
  char *mchar = (char *)pvParameters;

  for (;;) {
    vPrintString(mchar);

    vTaskDelay(500);
  }
```

```c
    vTaskDelete(NULL);
}

/*fUNCIONANDO ATE AQ*/
void OxiSat(void *pvParameters) {
  char *mchar = (char *)pvParameters;
  int OX;
  char outp[45];
  for (;;) {

    OX = ((int)rand() * (80 - 100)) / (int)RAND_MAX + 100;
    sprintf(outp, "%d", OX);
    vPrintString("Starting Monitoring...");
    vPrintString("\n");
    vPrintString("Saturation: ");
    vPrintString(outp);
    vPrintString(" %");
    vPrintString("...\n");

    if (OX < 90) {

      vPrintString("!!!!Low saturation!!!!");
      vPrintString("...\n");
    }

    vPrintString("\n");

    vTaskDelay(500);

    vPrintString("\n");
  }

  vTaskDelete(NULL);
}
/*Consegui implementar a func de oxi*/

/*Monitorar*/
void MoniTemp(void *pvParameters) {
  char *mchar = (char *)pvParameters;
  double temp;
  char outp[45];

  for (;;) {

    temp = ((double)rand() * (34.0 - 41.0)) / (double)RAND_MAX + 41.0;
    sprintf(outp, "%.2f", temp);

    vPrintString("temperature: \n");
    vPrintString("...");
    vPrintString(outp);
    vPrintString(" - Degrees Celsius.");
    vPrintString("\n");
    vPrintString("...\n");
    if (35.00 > temp) {
      vPrintString("\n");
      vPrintString("!!!!Low Temperature!! Hypothermia detected!!!!");
      vPrintString("\n");
    }
```

```c
    if (37.50 < temp) {
      vPrintString("\n");
      vPrintString("!!! High Temperature Fever detected !!!\n");
      vPrintString("\n");
    }

    vPrintString("\n");

    vTaskDelay(500);
  }

  vTaskDelete(NULL);
}
/* Monitoramento de Temperatura implementado, verificar se da erro nos doubles,
 * e otimizar o calculo de gerar numero aleatorio*/

/*Funcao main principal provisoria*/

int main_(void) {
  xTaskCreate(BatReg, "Gerar  batimento", 1000, NULL, 1, NULL);
  xTaskCreate(OxiSat, "Oxygen Saturation", 1000, NULL, 1, NULL);
  xTaskCreate(MoniTemp, "Temperature Monitoring", 1000, NULL, 1, NULL);

  vTaskStartScheduler();

  for (;;)
    ;

  return 0;
}
```