```
/*******************************************************************************
 Module
   SwitchService.c

 Revision
   1.0.1

 Description
   This is a template file for implementing a simple service under the
   Gen2 Events and Services Framework.

 Notes

 History
 When           Who     What/Why
 -------------- ---     --------
 05/07/20 18:18 hbf      convert for Lab 10
 01/16/12 09:58 jec      began conversion from TemplateFSM.c
*******************************************************************************/
/*---------------------------- Include Files ----------------------------*/
/* include header files for this state machine as well as any machines at the
   next lower level in the hierarchy that are sub-machines to this machine
*/
#include "ES_Configure.h"
#include "ES_Framework.h"
#include "SwitchService.h"
#include "DataParserService.h"

/*---------------------------- Module Variables ---------------------------*/
// with the introduction of Gen2, we need a module level Priority variable
static uint8_t MyPriority;
static uint8_t LastSwitchState;
static uint8_t SwitchState;
static struct GameStatus *gamestatus;

/*---------------------------- Module Code ----------------------------*/
/*******************************************************************************
 Function
    InitSwitchService

 Parameters
    uint8_t : the priorty of this service

 Returns
    bool, false if error in initialization, true otherwise

 Description
    Saves away the priority, and does any
    other required initialization for this service
 Notes

 Author
    H. Francis, 05/07/20, 18:50
*******************************************************************************/
bool InitSwitchService(uint8_t Priority)
{
  ES_Event_t ThisEvent;

  MyPriority = Priority;
  gamestatus = getPointerToGameStatus();
  //Set port lines as digital inputs
  ANSELA &= (BIT2LO & BIT3LO & BIT4LO & BIT5LO & BIT6LO & BIT7LO);
  WPUA |= (BIT2HI | BIT3HI | BIT4HI | BIT5HI | BIT6HI | BIT7HI);
  TRISA |= (BIT2HI | BIT3HI | BIT4HI | BIT5HI | BIT6HI | BIT7HI);
  LATA &= (BIT5LO & BIT4LO & BIT0LO);
```

```
  if(PORTAbits.RA2) SwitchState |= BIT3HI;
  if(PORTAbits.RA3) SwitchState |= BIT2HI;
  if(PORTAbits.RA4) SwitchState |= BIT1HI;


 // post the initial transition event
 ThisEvent.EventType = ES_INIT;
 if (ES_PostToService(MyPriority, ThisEvent) == true)
 {
  return true;
 }
 else
 {
  return false;
 }
}

/****************************************************************************
 Function
    PostSwitchService

 Parameters
    EF_Event_t ThisEvent ,the event to post to the queue

 Returns
    bool false if the Enqueue operation failed, true otherwise

 Description
    Posts an event to this state machine's queue
 Notes

 Author
    H. Francis, 05/07/20, 19:01
****************************************************************************/
bool PostSwitchService(ES_Event_t ThisEvent)
{
 return ES_PostToService(MyPriority, ThisEvent);
}
/****************************************************************************
 Function
    GetSwitchState

 Parameters
   none

 Returns
   uint8_t value of switches

 Description
    Reads port lines on switches and returns the resulting values

 Notes

 Author
    H. Francis, 05/07/20, 19:02
****************************************************************************/
bool CheckSwitchState( void ) {
  bool ReturnVal = false;

  if(PORTAbits.RA2) SwitchState |= BIT3HI;
  else SwitchState &=BIT3LO;
  if(PORTAbits.RA3) SwitchState |= BIT2HI;
  else SwitchState &= BIT2LO;
  if(PORTAbits.RA4) SwitchState |= BIT1HI;
  else SwitchState &= BIT1LO;

  if(SwitchState != LastSwitchState) {
```

```
      if(SwitchState &= BIT3HI) gamestatus->WeOmniPinged = true;
      else gamestatus->WeOmniPinged = false;
      if(SwitchState &= BIT2HI) gamestatus->WeDirectPinged = true;
      else gamestatus->WeDirectPinged = false;
      if(SwitchState &= BIT1HI) gamestatus->WeLaunched = true;
      else gamestatus->WeLaunched = false;
      ReturnVal = true;
    }
    LastSwitchState = SwitchState;
    return ReturnVal;
}
/****************************************************************************
 Function
   RunSwitchService

 Parameters
   ES_Event_t : the event to process

 Returns
   ES_Event, ES_NO_EVENT if no error ES_ERROR otherwise

 Description
   nothing to do

 Notes

 Author
   H. Francis, 05/07/20, 19:07
****************************************************************************/
ES_Event_t RunSwitchService(ES_Event_t ThisEvent)
{
  ES_Event_t ReturnEvent;
  ReturnEvent.EventType = ES_NO_EVENT; // assume no errors
  return ReturnEvent;
}

/*------------------------------ Footnotes -------------------------------*/
/*------------------------------ End of file -----------------------------*/
```