Educational Objective:

The educational objective of this project assignment is to investigate the many capabilities of the MSP432. The objective will be met by creating an independent project based on an interest of your own. The project should include at least FIVE main topics/learning outcomes from this course in its realization.

Background:

The ultimate goal of this project is to use the knowledge you have gained throughout this course to design something of interest to you! Take a look back at your answers from previous homeworks about how some of the Microcontrollers topics relate to your interests.

You will have three weeks to complete this project. The schedule is as follows.

Week	Deadline
1	Prelab Due – Initial Idea Signoffs
2	Working Session
3	Final Demonstration

Pre-Laboratory:

1. Outline your project idea. If you would like to work with a partner you must first receive approval from your professor.
2. Identify at least 5 components that will be used in the final design of your project that you have learned about in Microcontrollers this semester.
3. Draw any state machine diagrams that you plan to use.
4. Receive a signoff for your project idea from your Professor.

Procedure:

1. Use the following items as a reference of possible components for your design.
    a. Ports
    b. State Machines
    c. SysTick and TimerA
    d. Speakers
    e. Hardware Interrupts
    f. Timer Interrupts

   g. SPI - LCD
   h. Bluetooth
   i. IR sensing
   j. Ultrasonic Sensing
   k. Servos
   l. Analog to Digital Converters
   m. Any additional sensor items from the lab kits
      i. Ask your Professor about additional options
2. Complete your design and demonstrate a working prototype.
   a. Keep track of design issues for your final write up.
3. Write a single page document OR create a website to document your project.
   a. This document or website can be shown to prospective employers to demonstrate what you learned in Microcontroller this year. Take it seriously!
   b. Include information about:
      i. Short project description
      ii. Original conceptualization
      iii. Obstacles faced
      iv. Testing and verification
      v. Pictures or videos
      vi. Possible improvements with more time
4. Receive a signoff with your demonstration from your Professor.

Signoffs and Grade:

Name:_____

Component	Received	Possible
Prelab – 5 supporting items and state machine diagrams		20
Signoffs – Components Used		40
Successful Demonstration		20
Final Write Up – Single Page or Website		20
Total		**100**