
**Boston University**
**Electrical and Computer Engineering**
**EC464 Senior Design Project**

# 2nd Prototype Testing Plan

# VETCON
# BADGE


**By**

**Team 32**

**Team Members**

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## Required Materials:

### Hardware:

1. Texas Instruments (TI) MSP430FR2433 LaunchPad™
    a. 16 bit MCU
    b. 20-pin LaunchPad Kit Standard Leveraging The BoosterPack Ecosystem
    c. On-Board eZ-FET Debug Probe
    d. 2 Buttons And 2 LEDs For User Interaction
    e. HC-05 Bluetooth Module
2. Computer/Laptop
3. Micro USB Cable
    a. Connection Between MSP430 & Computer
4. Arduino, Wires, Resistors, and Extra LEDs for Testing

### Software:

1. Code Composer Studio Integrated Development Environment. (CCSTUDIO)
    a. C/C++ compiler
    b. Source Code Editor
    c. Build, Upload, Monitor
    d. Embedded Debug Capabilities
2. Visual Studio Code
    a. Source Code Editor
3. PlatformIO
    a. Cross Platform / Cross Architecture IDE tool
    b. Embedded Application Software Development
4. Scripts
    a. C++ Script, main.cpp
5. Package Extensions
    a. Monitoring Button State & Debouncing
6. Github Pages
    a. Hosting Of Web Games

## Setup:

The setup for this project is relatively simple. First, a team member's computer will clone the team's Github Repository with the test code from the 'testing' branch. The project containing 'main.cpp' and all libraries and dependencies will be opened through PlatformIO on the Visual Studio Code IDE. Finally, a team member will plug in the MSP430FR2433 to the computer, ready for demonstration.

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## Testing Procedure:

1. Initialize the MSP + software (build, upload, and monitor)
2. Demonstrate option 1 (Set Name Tag)
    a. Demonstrate that repeating option 1 prompts message that name has already been set
3. Demonstrate option 2 (Display Name Tag)
4. Demonstrate option 3 (Game Link)
    a. Demonstrate the Dino Game
    b. Show winning condition secret code
5. Demonstrate option 0 (Reset)
6. Demonstrate secrets
    a. Show a secret username through option 1
    b. Select option 4, prompting "access denied"
    c. Select 'secret' option 9, unlocking option 4 in the menu
    d. Enter secret token from game 1, changing LED1 state
7. Demonstrate option 5 (Game Link 2)
    a. Demonstrate the coin flip game
    b. Select option 6 again and enter secret token from game 2, changing LED2 state
8. Demonstrate saved data between device power states
    a. Disconnect device from power and show that it is fully off

    b. Reconnect device to power and show the information saved in the previous session
9. Demonstrate option 8 (Bluetooth)
    a. Show Bluetooth serial port can be connected to.
    b. Show successful print statement of Bluetooth serial port

## Measurable Criteria:

The criteria for a successful running of the prototype testing is as follows:

1. VETCON BADGE displays on startup
2. Main menu displays in terminal
3. User can select from given options
4. User can enter name to nametag
5. User's name can be displayed
6. Game links can be retrieved
7. Online games run
8. Secret phrases can be retrieved on winning the games
9. User can reset badge
10. User can select to abort / continue with reset
11. User can keep their stored data on the device after reconnecting to power
12. User can connect to the Bluetooth serial port.