**CYBR 3520 Introduction to Cyber-Physical Systems Security**

**Homework #1**

Please refer to the syllabus for expectations of homework professionalism and appearance. Your homework is expected to be an individual effort. It is also expected to be neat and clearly organized. The University provides access to many software applications. Use them. Hand written papers are not acceptable. You must submit your answers of the problems in one **Word** file by the specified due date and time. You can find the link for your softcopy submission on Blackboard.

***This homework is due: September 6, 2022, 11:00 PM***

***Total points: 16***

The cover page of your homework will contain only the following information in the format given below:

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**Course #: CYBR 3520**

**Homework #: Homework 1**

**Semester: Fall 2022**

1. [10 pts] Write a program for the micro:bit in Python. I know this is not specific, but it is not supposed to be. Explore the board and the Python API. (https://microbit-micropython.readthedocs.io/en/latest/microbit\_micropython\_api.html)

Get creative! The limits are

a) it cannot be a program we have already written,

b) you may use multiple sensors and LEDs on the board,

c) and it has to be at least 15 lines of Python.

On September 7th, Wednesday, you need to make a quick demo in class.

Copy pastes your code below.

def on\_gesture\_logo\_up():

    basic.show\_leds("""

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    """)

input.on\_gesture(Gesture.LOGO\_UP, on\_gesture\_logo\_up)

def on\_gesture\_tilt\_left():

    basic.show\_leds("""

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input.on\_gesture(Gesture.TILT\_LEFT, on\_gesture\_tilt\_left)

def on\_gesture\_tilt\_right():

    basic.show\_leds("""

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input.on\_gesture(Gesture.TILT\_RIGHT, on\_gesture\_tilt\_right)

def on\_gesture\_logo\_down():

    basic.show\_leds("""

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    """)

input.on\_gesture(Gesture.LOGO\_DOWN, on\_gesture\_logo\_down)

2. [6 pts] Given what we have discussed in class so far, describe what you see as security weakness with the system you developed for Q1, and with the micro:bit platform in general. One or two paragraphs are sufficient. I do not expect a thesis at this point.

There is no security implemented at all into the micro-bit. Anyone able to plug into the device is able to upload their own code and also has access to the onboard storage that it has.