Defuse the Bomb

A CSC 102 Project

Team: <The Bomb Squad>

BOMB DEFUSAL

MANUAL

Version 1

Verification Code: <2023xGOODLUCK>

The Game

This project is based on the game **Keep Talking and Nobody Explodes**[1], a cooperative bomb defusing party game. As the game designers put it, "You're alone in a room with a bomb. Your friends, the 'Experts', have the manual needed to defuse it. But there's a catch: the Experts can't see the bomb, so everyone will need to talk it out – fast! Put your puzzle-solving and communication skills to the test as you and your friends race to defuse bombs quickly before time runs out!"

Their version is a software game. Our version takes the idea and realizes it as a physical device with buttons, switches, and more! Although our version can be played just like theirs, players can interact with both the bomb and this document at the same time (i.e.,
players can both defuse the bomb and serve as the "Experts", using this document to help disarm the phases).

The backend of our version of the game is a Raspberry Pi[2] computer that combines a

typical computer with the ability to interact with the outside world through sensors. The underlying software is written in Python[3] and is the result of a final group-based project in CSC 102 (The Science of Computing II) in the Computer Science Program at the University of Tampa.

Defusing Bombs

The bomb will "explode" when its countdown reaches 0:00 or when too many strikes have occurred. You defuse the bomb by disarming all of its "phases" before the countdown expires.

Phases

The bomb has four phases, each of which must be disarmed to defuse the bomb. The phases can be disarmed in any order. Once a phase is disarmed, it becomes inactive and changing it doesn't affect the bomb. Instructions for disarming the phases are provided in this document.

Strikes

A mistake in disarming a phase results in a strike. Get too many strikes, and the bomb "explodes". Sometimes, the remaining countdown time will be decreased and/or go by faster when a certain number of strikes has occurred.

Information

A different version of the bomb is randomly presented each time it is "booted". There are 6,720 unique versions of the bomb with a whopping 1,176,000 possible variations!

Disarming some phases will require specific information about the bomb. Pay close attention to the "bootup" text on the bomb's screen.

Regarding the Toggles

To disarm the toggles pay close attention to all of the numbers in the serial number. To defuse this phase flip the correct switches. To do this add up all of the numbers in the serial number, and flip the switches so that the toggles represent the corresponding binary number when the least significant bit is on the right and the most significant is on the left, and when the switch is on it represents a 1 and when it is off it represents 0.

Binary help: For those who do not know how binary works, I will provide a brief explanation. Essentially binary numbers consist of "1"'s and "0"'s. Each number in binary represents a bit so "1" is one bit and "101" is 3 bits. In this case, the rightmost bit is the least significant and it increases as it goes to the left. To calculate the number just add up all the bits that have a 1. To do this you need to know that each bit index(n) starting from the rightmost bit(which has an index of 0) is valued at 2^n. So the value "1010" would be 0 + 2 + 0 + 8 = 10. Or "11" = 1(2^0) + 2(2^1) = 3. Hope this helps and good luck.

Regarding the Button

To diffuse the button you must pay attention to the color of the button.

If the Button color is **Red**, you simply need to press and release the button(This one is easy)

If the Button color is **Blue**, you must hold and release the button when the last numeric digit in the serial number is in the seconds part of the timer (in the bottom right of the bomb)

Lastly, if the Button color is **Green**, You must hold and release the button when the timer's "seconds" digit matches the first numeric digit in your serial number.

Regarding the Keypad

Diffusing the keypad will take a little more work, as it will require you to decipher a code.

In the information at the top of your bomb, you will be given information about your keypad

To diffuse your keypad, it is quite simple, just look at "keyword" in the top part of your bomb information. In this section, you will be given a riddle, and when you think you have the correct answer, type your answer into the keypad. Upon typing in the correct answer, your keypad will be diffused.

Regarding the Wires

To defuse the wires, you will once again be looking at the serial number for your answer.

To find out which wires need to be attached, you will be looking at the first 3 letters in your serial number. You will then leave in the wires that match those

letters, and take out the wires that do not. For the wires, the topmost wire represents the letter "A", the last wire spot represents "E", and everything wire spot in-between represents the corresponding letter in between as well.

Best of Luck,

The Bomb Squad.

[1]https://keeptalkinggame.com/

[2]https://www.raspberrypi.com/

[3]https://www.python.org/