Defuse the Bomb

A CSC 102 Project

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BOMB DEFUSAL MANUAL

Version 1

Verification Code: <enter your code>

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. You must defuse the bomb by disarming all of its "phases" before the countdown expires.

Phases

[1] https://keeptalkinggame.com/

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

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

The bomb has three modules, 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.

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 Dead Man's Switch module

Description:

A Dead Man's switch is a button that, when pressed, cannot be lifted without triggering some sort of negative consequence. This module puts you in the place of defusing it-by overloading the system with

How It Works:

On activation, the button becomes "active". It has two states, active and inactive, and alternates between the two of them in correspondence with the pushed state of the button.

To defuse the module, the player must press the button in rapid succession 10 times, or face the peril of lost time and an eventual explosion!

Regarding the Trebek module

Description:

A question that will leave your fate in great JEOPARDY, the Trebek module asks the player several different AI-generated questions about all matter of things, from geography, to science, to pop culture.

How It Works:

On activation, a series of questions is randomly generated. The player must select a correct answer out of 4 possible options for a random question 10 times in order to defuse the module and satisfy the spirit of Alex Trebek.

Incorrect questions will not deduct any points, but WILL result in lost time/opportunity cost for the defusing of this module.

Regarding the Land-Mine module

Description:

The Land Mine module is a pressure-sensitive challenge. The player must hold the button continuously while solving a set of toggle switches. If the player releases the button too early, the bomb's countdown timer will rapidly decrease, simulating a land mine trigger.

How It Works:

On activation, a label appears with the module title and instructions. A "Target Code" is displayed using a letter-based hint. Letters represent binary values

The player must: Hold the button down continuously. Flip the toggles to match the decoded pattern. While the button is held down, a timer (time held:) increases visibly. If the button is released prematurely, the bomb timer drops by 2 seconds every second — simulating the mine "detonating."

key:

1	0
A	B
C	D
F	E
G	H
I	J
L	K
M	N
O	P

Regarding the Shenanigans module

description:

This module relies on your knowledge of simple binary with a little bit of trickery. In this module, you must complete all parts to move on to the next stage.

How it works:

Once it pops up, you will see a basic screen with everything mainly on the right. You must solve a wire combination, a keypad combination, a toggle combination, and a button to pass this module. Just keep an eye out for what you put as the combination for the wires and toggles, as I heard good and bad are _____ of each other. Also, type into the keypad slowly as there is no back option, and you will have to let the time run out, and you blow up!

Regarding the Binary Addition module

Description:

The Binary Addition module challenges the player to solve a simple binary math problem. Two 4-bit binary strings are provided. The player must calculate their binary sum and set the toggle switches to match the 4-bit binary result.

How It Works:

On activation, a label appears displaying the module title and instructions. Two 4-bit binary strings (string 1 and string 2) are shown; their sum is guaranteed to be a 4-bit binary value (between 0000 and 11111).

To solve the module, the user must perform binary addition on the two strings and input the result through the toggles.

Once the toggles match the correct binary sum, the module is solved, and the interface returns to the main bomb screen.

Regarding the Keypad module

Description:

This module is very simple module, it gives you a random code from a list of codes that are stored, that you need to type into the keypad to defuse it, or you can waste time and explode if you want

How it works:

The module will load with the keypad being slightly out of place, and it will say a target number next to the text. Type the number shown on the screen into the keypad to defuse this module