Defuse the Bomb

A CSC 102 Project

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BOMB DEFUSAL MANUAL

Version 1

Verification Code: 0xBOOM

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

[1]https://keeptalkinggame.com/

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

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

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!

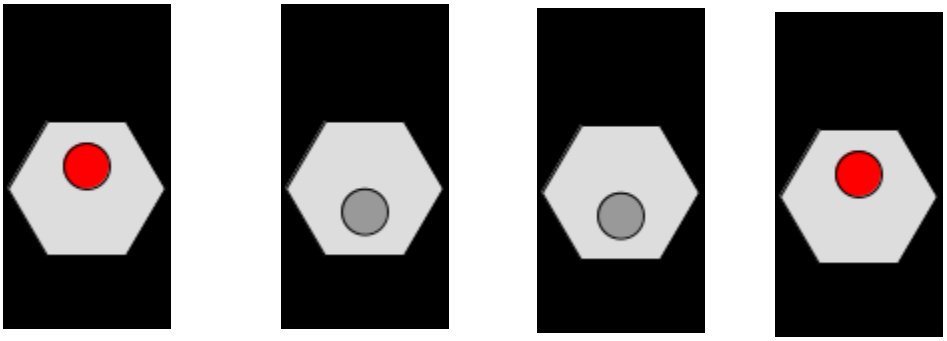
Disarming some phases will require specific information about the bomb. Pay close attention to the "bootup" text on the bomb's screen.

Regarding the Toggles

*They might be shiny and so fun to press, but remember one wrong *flick* and its all over*

The correct state of the toggles is based on a binary sequence that has to be added together

First youll need to figure out what the binary numbers that are given are this can be done with the binary explanation below, after this youll just simply add both



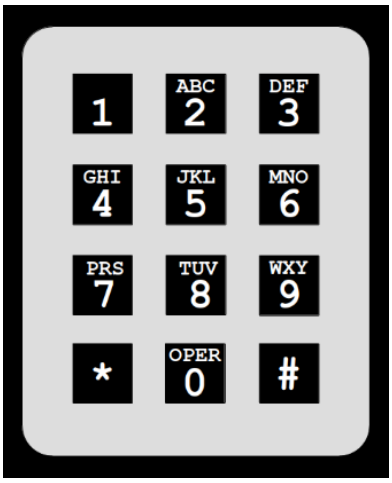
numbers together and find the binary code for that number and input based on the toggles, the input is also explained below:

Converting a number to binary (base 2) can be done by placing a 1 in the appropriate powers of two represented by the columns of the table below that,

when added together, sum to the value. A 0 is placed in the remaining columns. The left-most digit of the binary number is known as the MSB (most significant bit), while the right-most digit is known as the LSB (least significant bit).

The left-most toggle switch represents the MSB, and the right-most toggle switch represents the LSB. The LED on a toggle switch lights up to represent a binary 1. Use the diagram below to assist you (which, by the way, represents the value 9).-=-

2^3	2^2	2^1	2^0
8	4	2	1



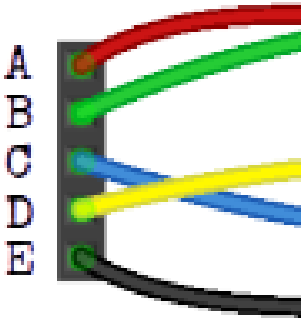
Regarding the Keypad

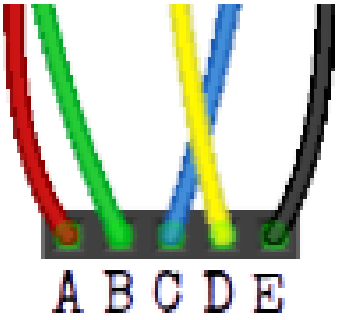
Numbers or Letters which one is it?!

Note that the actual color of the wires doesn't matter, and the color of the wires on your bomb may be different than those in this document. "Cut" the wires based on the color of the button according to the following instructions:

For this portion of the bomb it is quite easy for you, your job is to simply pay attention to the sequence of numbers and letters that will be displayed at the start and type them in, the letters will be respective to the numbers on the key pad

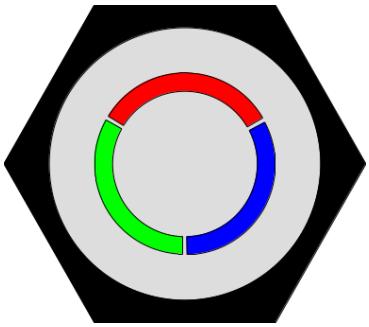
Regarding the Wires





This phase is also simple, this one is just connecting the riddle to the wires based on order. The order that you have to "cut" the wires is based on the chart to riddle. Going from left to right is the order of the wires first to last.

Riddle	Solutions
From first to last, I describe a journey from seed to stone.	ABCDE
I start with the end of forever and end with the beginning of eternity.	EDCBA
Arrange me from the smallest to the largest: Mouse, Elephant, Rabbit, Cat, Dog.	AECBD



Regarding the Button

At some point, you will need to press the button. However, releasing it is the hard part. The button has a lighted ring around it that can be red, green, or blue. Release the button according to the following instructions:

Button color	Release instructions
Red	Release the button at any time
Green	Release the button when the first numeric digit found in the bomb's serial number appears anywhere in the seconds of the countdown timer.
Blue	Release the button when the last numeric digit found in the bomb's serial number appears anywhere in the seconds of the countdown timer
Other	Here's to hoping that you never run across this case...