Defuse the Bomb

A CSC 102 Project

Team: The Atomic Bomb

BOMB DEFUSAL

MANUAL

Version 1

Verification Code: <1ri7ybyi51bel>

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.

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[1] https://keeptalkinggame.com/

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

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

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".

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
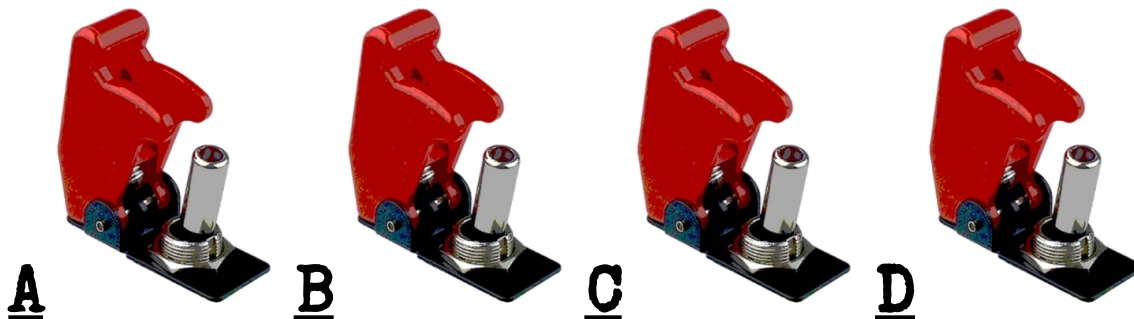
You will see four toggles on the bomb in front of you, labeled A, B, C, and D, from left to right. In order to defuse this phase of the bomb, you need to turn on the correct sequence of toggles by lifting the cap and flipping the switch backward. A successful toggle switch will reveal a red light at the top, and the proper sequence will allow the status on the bomb screen to change to defuse.

There are hints on the screen to reveal which toggle(s) you need to switch to defuse but be careful. Too many errors will cause the strikes to run low and cause the bomb to explode early.

Make sure to pay close attention to any combination of letters and numbers you see on the screen. There are lots in the initial boot-up text, but only one reveals the letters you need to defuse the toggles.
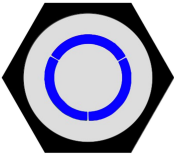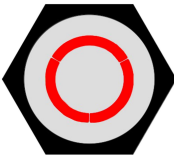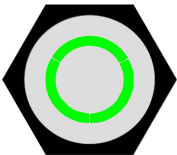
Regarding the Button

Now it's time for the button... The button behaves in unpredictable ways. Follow the instructions below closely to avoid a strike!
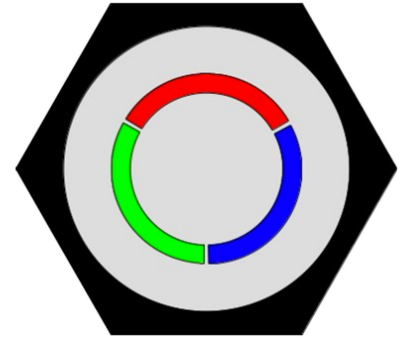
The button phase is easier than you think! You just need to follow these instructions so you don't get any strikes... because remember as you make mistakes, you lose strikes and get closer to the bomb exploding!

Be careful and make sure to follow these very specific instructions. Watch the countdown and do not press the button unless defusing it or you will lose your strikes.

Button Color	Release Instructions
Blue	Release the button when the third numeric digit found in the bomb's serial number appears in the seconds of the countdown timer.
Red	Release the button when the first even numeric digit found in the bomb's serial number appears in the seconds of the countdown timer. Hint: 0 is an even number
Green	Release the button when the second to last numeric digit found in the bomb's serial number appears in the seconds of the countdown timer.

Regarding the Keypad

Uhhh oh, time to get your thinking caps on!! It's time for
riddles ... with a little bit of unscrambling!

First, you will receive a riddle displayed on the screen. The
riddle may require some thinking but don't think for too long,
remember you are working on a timer.

There are 2 options. Option A you read the riddle and
immediately know the answer and type it in on the keypad. But don't forget if you
get it wrong, you lose 1 of 5 strikes. Option B is you read the riddle, and look up
the answer in the table below. It is not that easy though, the word given is
scrambled and it is up to you to work fast to unscramble the word and type it in
on the keypad.

You must enter its numeric combination on the keypad, which means you need to
press each button on the keypad with the corresponding letter you want once.

Riddle	Answer	Riddle	Answer
What goes all the way around the world but stays in a corner?	MTSPA	What word looks the same upside down and backward?	ISSMW
What has four fingers and a thumb, but isn't alive?	VOLEG	What has 13 hearts, but no other organs?	SRACD
What gets wet when drying?	WLETO	What word is always spelled wrong?	NORGW
David's father has three sons: Snap, Crackle, and _ _ _ _.	VDDAI	I have no legs but never walk, but always run. What am I?	ERRVI
What gets bigger when more is taken away?	SHLOE	What has hands, but can't clap?	OCCLK

Regarding the Wires

This phase is difficult, and you will need to read
CAREFULLY in order to diffuse this phase!

Displayed on the screen, you will find a line labeled 'Key'.

Based on the key, you will be able to determine what wires

you need to pull and what wires need to stay.
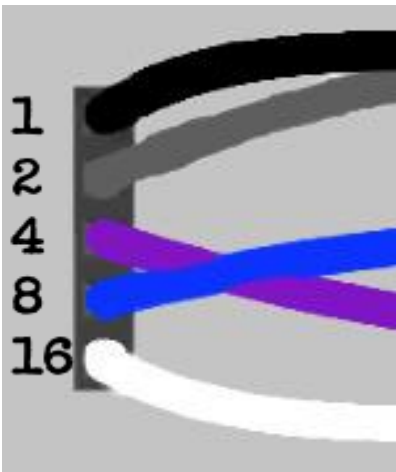
Below you will find a table with the key and its corresponding number. Once you
figure out what number you need for the wires, you then need to look below at the
table at the layout of the wires as numbers and **KEEP** the wires that hold the value
you need remained in. However, it could be simpler if you just think of the colors
of the keywords displayed on the bomb.

1	2	3	4	5	6	7	8	9	10
coal	iron	coal iron	plum	coal plum	iron plum	coal iron plum	sky	coal sky	iron sky

11	12	13	14	15	16	17	18	19	20
coal iron sky	plum sky	coal plum sky	iron plum sky	coal iron plum sky	snow	coal snow	iron snow	coal iron snow	plum snow

21	22	23	24	25	26	27	28	29	30
coal plum snow	iron plum snow	coal iron plum snow	sky snow	coal sky snow	iron sky snow	coal iron sky snow	plum sky snow	coal plum sky snow	iron plum sky snow