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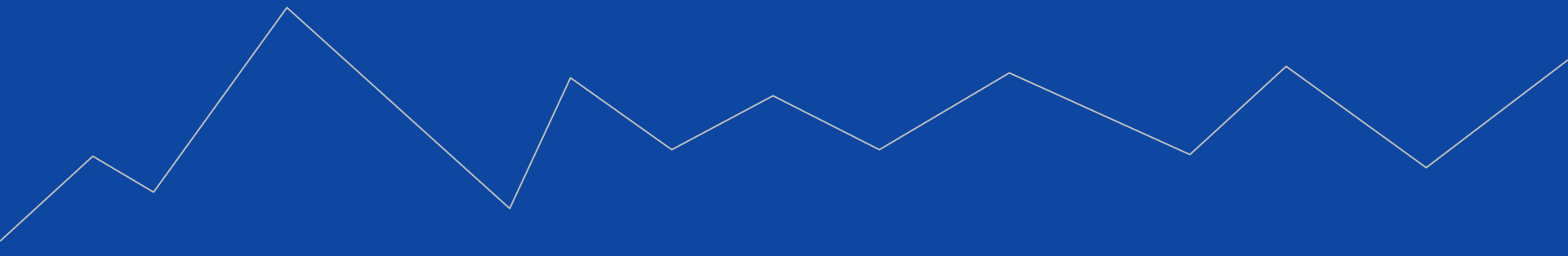
Keep Talking and Nobody's FPGA Explodes!

Amelia Becker & Mitchell Hwang



Keep Talking and Nobody Explodes

- A virtual reality bomb defusal game by Steel Crate
- “Defuser” and “Experts”- each with different, incomplete knowledge
- Bomb
  - Bomb Modules
  - Countdown Timer
  - Strikes

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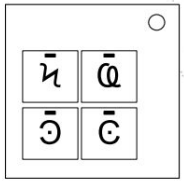
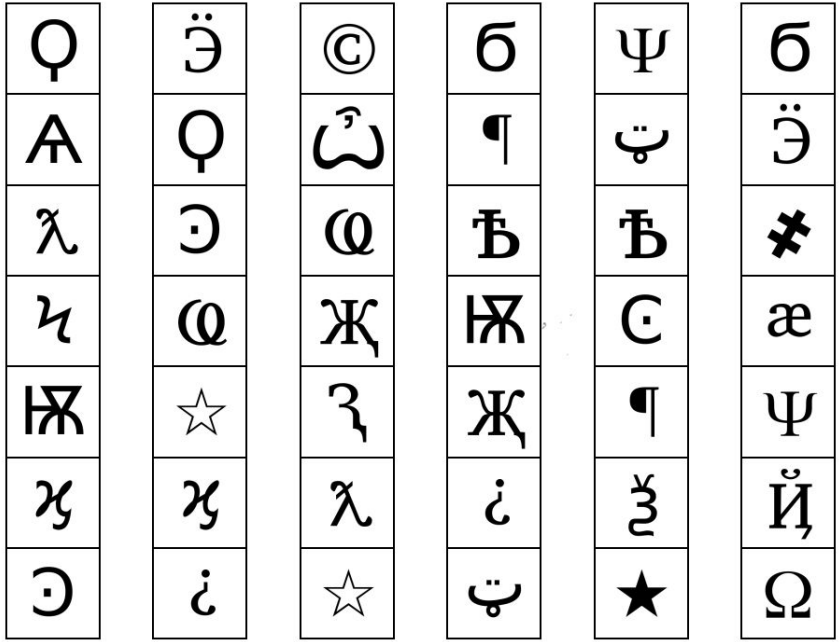
On the Subject of Keypads

I'm not sure what these symbols are, but I suspect they have something to do with occult.



- Only one column below has all four of the symbols from the keypad.
- Press the four buttons in the order their symbols appear from top to bottom within that column.

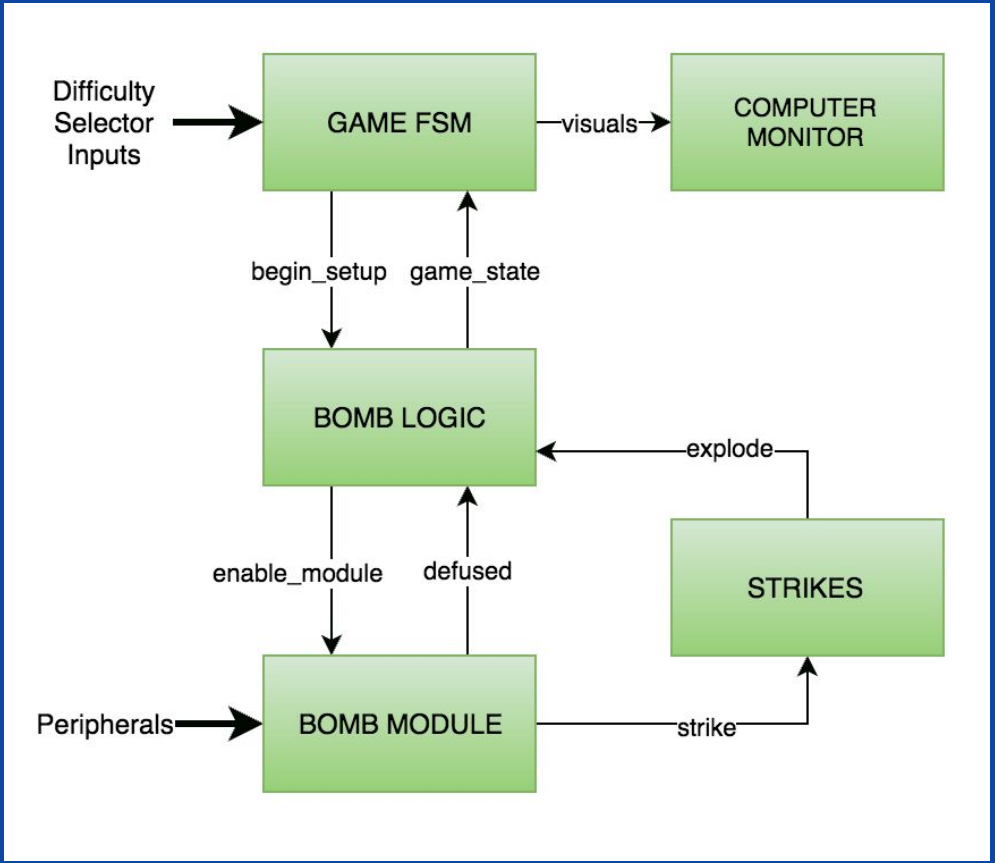


Keep Talking and Nobody's FPGA Explodes

- Retains the structure of the original game
- Takes the digital signals from each virtual module and interfaces with peripherals hooked up to the labkit

Design

- Game is inherently modular
- Each individual module interfaced with specific peripherals



Modules

- Don’t press the big red button
- Under Lock and Keypad
- Wire you so difficult?
- Bait and Switch
- But Simon said…
- Stop me!
- A-maze-ing

Module: Bait and Switch

This module will use the switches on the lab kit. There are a few numbers you have to create in succession by flipping switches on or off.

For each number on the screen, flip the switches (specified below) so they are on simultaneously.

The Defuser: Bait and Switch

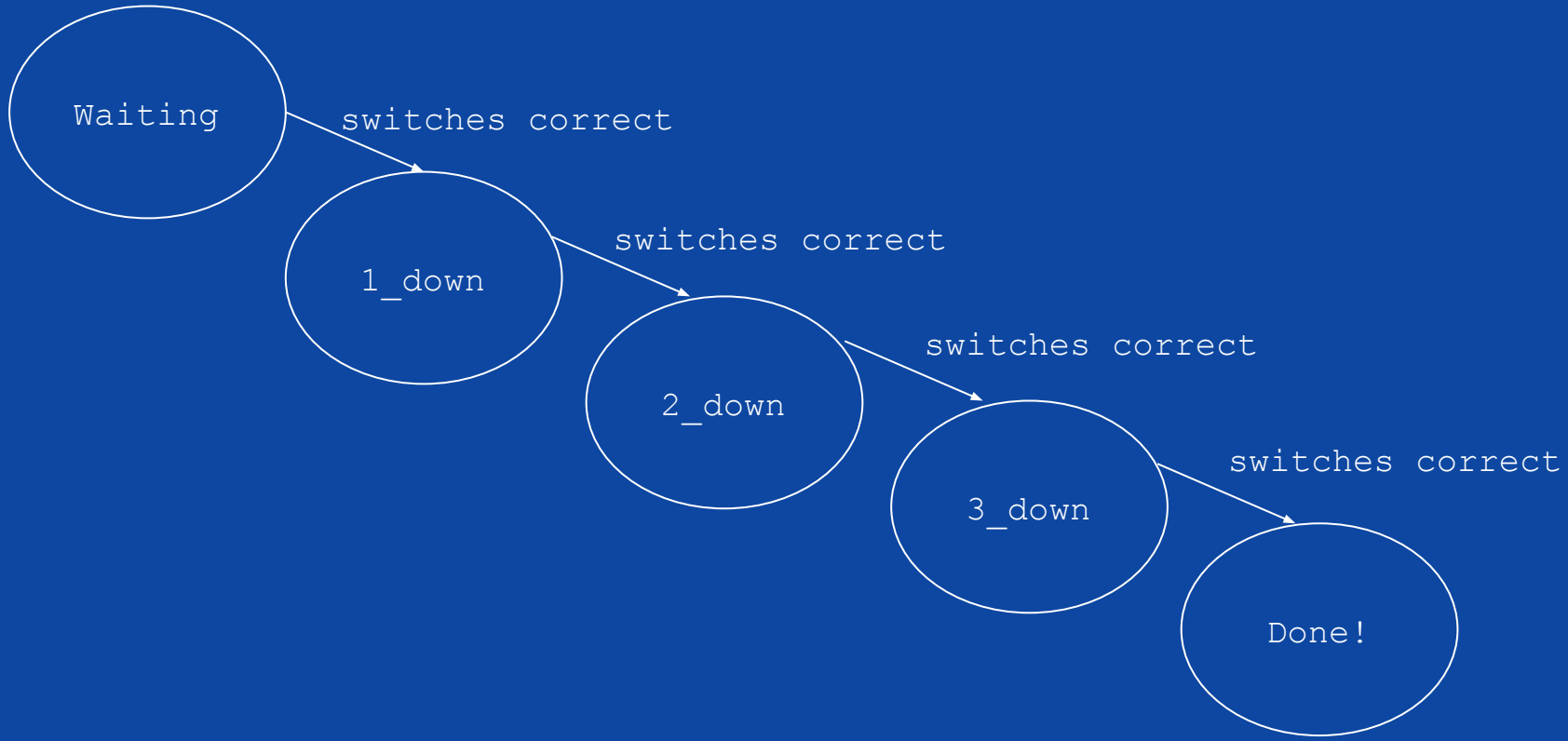
8 13 2 8

The Expert: Bait and Switch

```
[0 0 0 0 0 0 0 0] means all switches off

If the background is blue:
3:  [0 0 0 0 0 1 0 0]
6:  [0 1 0 0 1 0 0 0]
8:  [0 0 1 0 1 0 1 0]
10: [1 0 0 1 0 0 0 1]
If the background is red:
2:  [0 0 1 0 0 1 1 0]
8:  [0 1 0 0 1 0 1 0]
13: [1 0 0 1 1 1 0 0]
32: [0 1 0 0 0 0 0 1]
```

How it works: Bait and Switch



Testing

- modular by design
- each modules peripheral connections
- modules and game logic
- other modules
  - overall game FSM
  - bomb logic
  - display

Resources

Besides the labkit and the computer monitor, other important resources required generally are the external peripherals that we will interface with the bomb modules.

Timeline

Task	11/11	11/18	11/25	12/2	12/9
Game FSM/Bomb Logic					
Expert Manual					
Game Elements (strike, explode, RNG)					
Displaying on Monitor, SD interface					
Bomb Modules					
Bomb Module Peripherals					
Testing/Debugging					
Stretch goals: speakers, randomness					
Presentation, Checkoff, Final Report					

Blue: Mitchell, Red: Amelia, Purple: Both