THE GUESS OF DEATH

A less convinient form of analog hangman

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PSEUDOCODE: *The logic for my code will be based around these basic systems in my game: a letter picker for the user implemented by the use of a knob and a potentiometer, a button for the user that will be labeled as the "guess" button, a dial [dots dial] controlled by a servo that will can show the different positions of permutations of right and wrong in a five-letter word, a dial [gallows dial] controlled by a servo that will tell the user either if they have already guessed a letter or how many missed guesses they have.*

My intended code will start with the dots dial be set to the far left showing all 5 dots as empty and the gallows dial showing the happy face. (These outputs will be reflected as degree variables within the code, the actual numbers will be determined later after the faces for the dials have been tested with the servos.) The round starts with the computer selecting a random number. That number will be mapped and associated with a string in an array list that will be the five-letter word for the round. This will all happen in the setup portion of each round (or in the reset code I write at the end).

For every guess, the player will first press the button to enter into guess mode. This will tell the gallows dial's servo to show that a player is in a guessing mode. The code will then instruct the dot servo to begin reflecting the potentiometer knob (by first moving to match its current position). Turning the knob in guess mode will let the player choose which letter they want to guess. When a player presses the guess button again, the computer will disable the guess button/mode for the current time and then wait to ensure the servo has reached the correct letter display. Then the program will ask, "What is the current value of the servo?" Then, based on a series of "if" statements from tested values on the letter picker, the computer will know what letter has been chosen by the player. Once this letter is found by the program, it will exit the "if" statement list and place the corresponding character into a variable to be used for checking on how good the of a guess it was.

The next question would then be "Has the player guessed this letter before?" If after checking the character against a list of all the letters guessed, the letter proves to have been guessed, the computer will move

the gallows dial to indicate "already guessed." Simultaneously, the dot dial will move (no longer related to the potentiometer) to indicate which space the guessed letter occupies (can be none). Both dials will wait for a period and then move back to show status positions by changing which variable defines the current servo positions.

If the computer determines the letter to not have been guessed prior, it will run the letter through the guess checker. The guess checker will work as a series of "if" statements comparing the current guess character to each of the five letters in the selected word and changing a boolean variable for each of the five spaces (i.e., make the booleans true if the guessed letter matches the current word).

If any change in status has been detected (a separate change sensitive boolean will be placed within the previous guess checking series) then the system will run through a series of if statements to determine where to position the dot dial to correctly show how many letters the user currently has correct. (Thus if a guess is correct, the gallows dial stays still and the dot dial will move to show what the new status is.) If a guess is wrong, the gallows dial will move to indicate the current number of wrong tries (shown by icons going from left to right: toothy-smiling face, happy face, disconcerted face, frowning face, screaming face, skull).

Now that the letter has been guessed, it will be added to the list of guessed characters and the game will prepare for the next round. This will include resetting the change indicating boolean and allowing the button to have an effect on the game again. If during the last turn a player either got a wrong guess that moved the dial to the skull then the game will automatically shut off and have to be restarted to play again. If the player has won the game during a round by turning all of the space booleans true (as checked in the "change status tree"), then the game turn to the dot dial to the complete indicator and the game will enter into "party" mode. Party mode will consist of the game moving the gallows dial around at the smiley faces while the dot dial spells out the word over and over again. Pressing the guess button once will bring the game out of "party" mode and actually restart the game (reset all the variables and pick a new word).
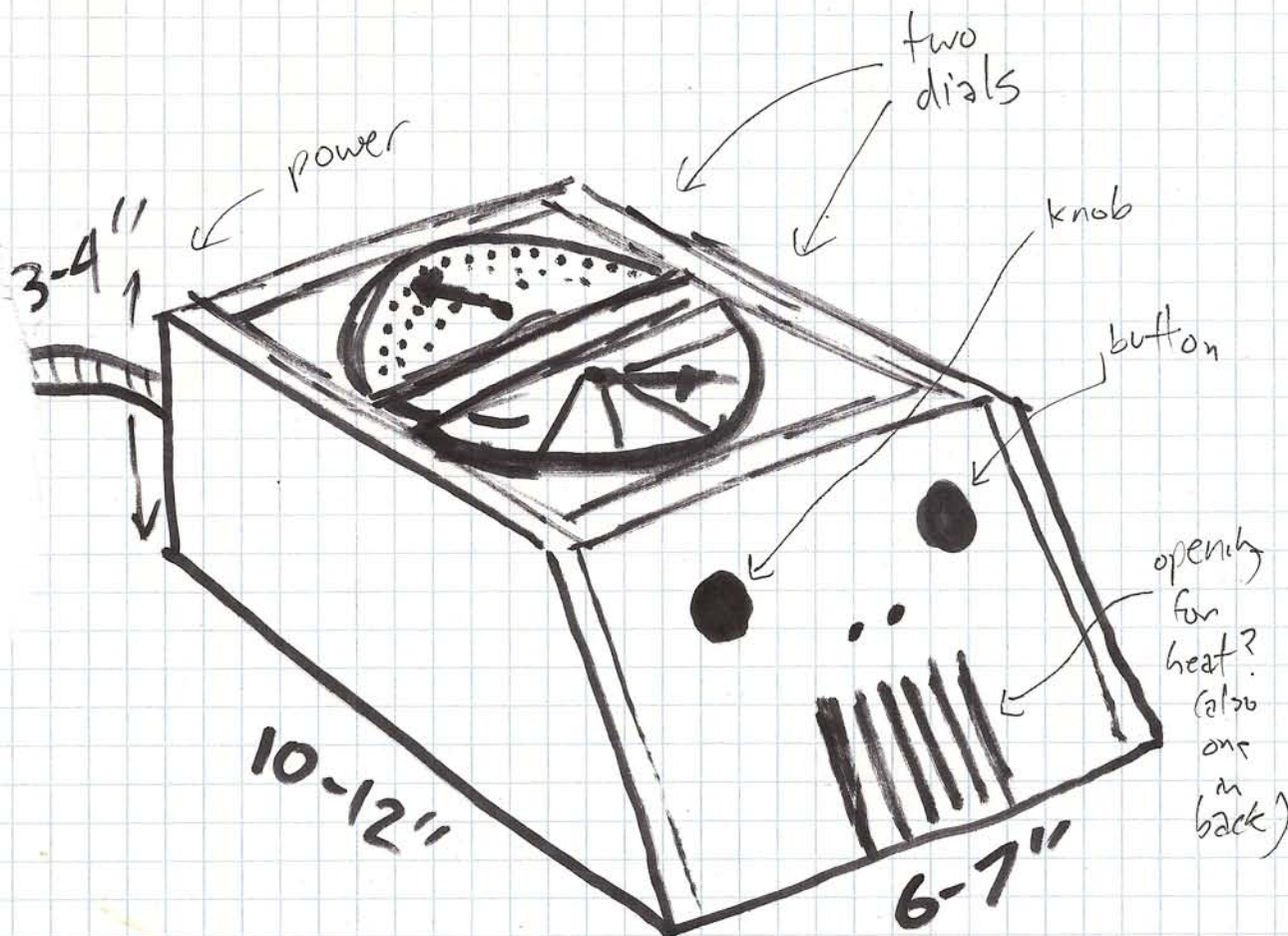
LIST OF STUFF NEEDED:

-Arduino (ordered)
-Wire (I have some, will get more)
-Power Supply (getting one from an old computer)
-2 x MOSFET transistors (maybe)
-Resistor (ordered)
-Potentiometer (ordered)
-Knob for use with potentiometer
-2 x Servos (ordered)
-Button (ordered)
-Needles for dials (steal from some object)
-Wood (I will get from ANAWALT)
-Spray paint (ANAWALT)
-Screws (Have them)
-Servo mounting hardware (need to do more research)
-Designed dials made of thick paper (created)

Labels on the sketch: power, two dials, knob, button, opening for heat? (also one in back), 3-4", 10-12", 6-7"
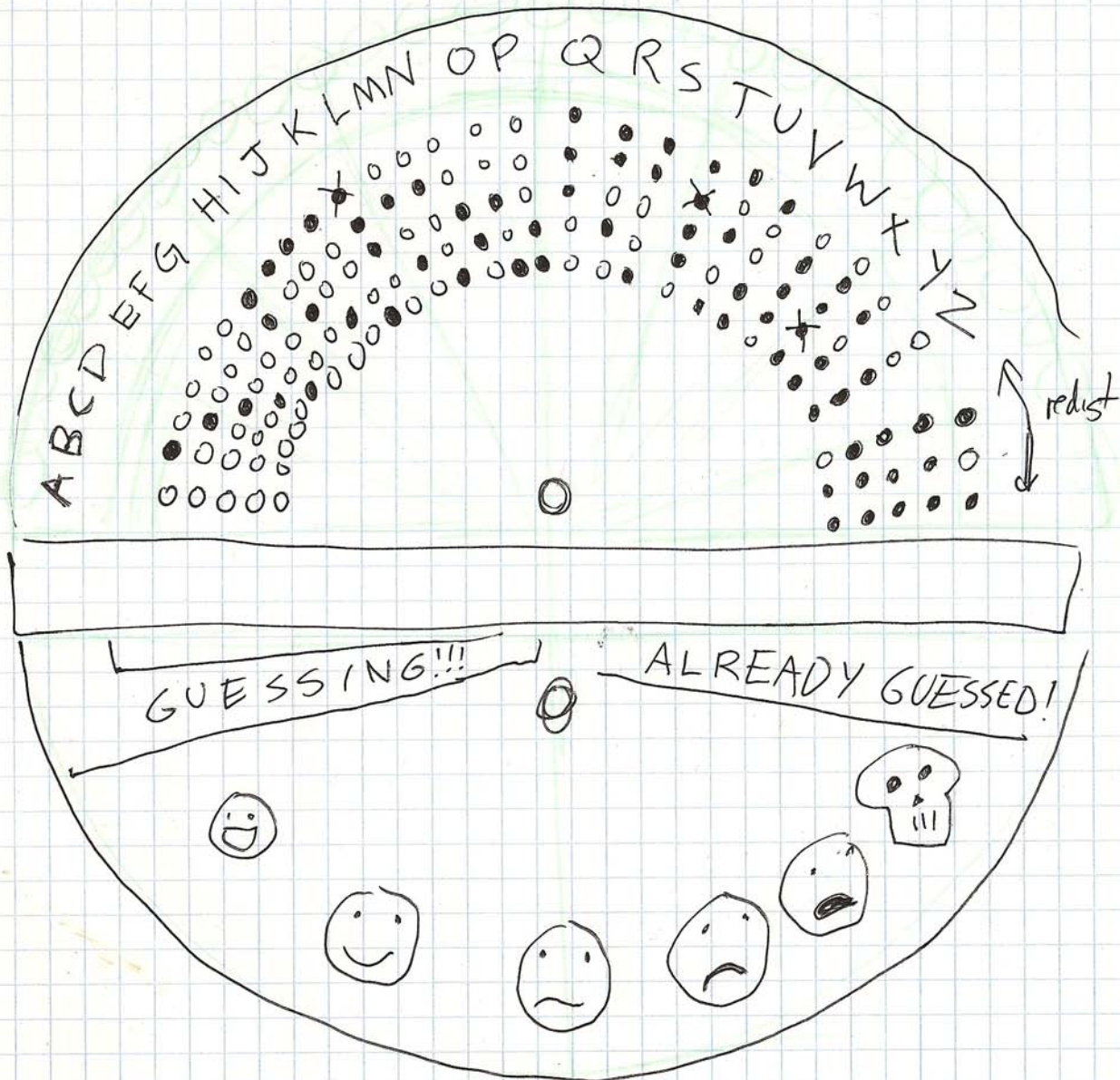
THE OUTSIDE

Made all out of wood, the exterior will be a sort of trapezoidal box features a button and a knob on the front and two dials on the top. The dials will be cut out of the wood and will actually be recessed material covered in paper (printed with the dial's information).

DIAL DESIGN

Two separate dials back to back. The top "dot dial" indicates placement within the 5 letter word (status and already guessed position) while the bottom dial indicates the path to death as well as when a player is in guessing mode and when a letter has already been guessed.

POWER

needles for dial indication

2.1"

servo

1.59" 40.6

5v arduino

2.96"

19.8

GRND

0.77"

GRND
5v

servo

PIN
PIN
PIN

PIN

.5v

Ground

10kΩ resistor

potentiometer

button

IDEAS FOR THE INSIDE