Team #28: Tapper

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The goal of our project is to be able to communicate between onions, using morse code. This communication will require us to translate plain english into morse code, find a way to send the translated code to the onions, and translate it back into english. The inputted string will have a maximum of 500 alphanumeric characters, that is obtained via a terminal, which our code will translate to morse code, using an array of structs that contain an alphanumeric character, its corresponding morse code, and the number of characters in the code. A LED will then flash the translated morse code and the other onion system will detect this by comparing the voltage of a circuit with the photoresistor directed towards the LED and a photoresistor that is pointed away from the LED. The comparator circuit, which will use the LM 471, will result in a positive voltage being sent to the onion whenever the LED is on, and no voltage when the LED is off.Once detected, it will translate the morse code into english and display the message on the terminal of a different computer. This process will repeat as many times as needed, until the users are satisfied. By using character arrays, structs, string manipulation, libraries such as ctime and some circuitry, we will have a strong grasp on the ideas between circuit communication and embedded systems.

Materials Required	**Cost Required($)**
Breadboard x2	20$
Photoresistors x10	3.68$
LM 471 Operational Amplifiers x4	3.50$
Batteries	Self-Provided
LED x2	Self-Provided
Resistors	-
Wires	-