

Game Timer
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Figure 1: A view of the timer switches

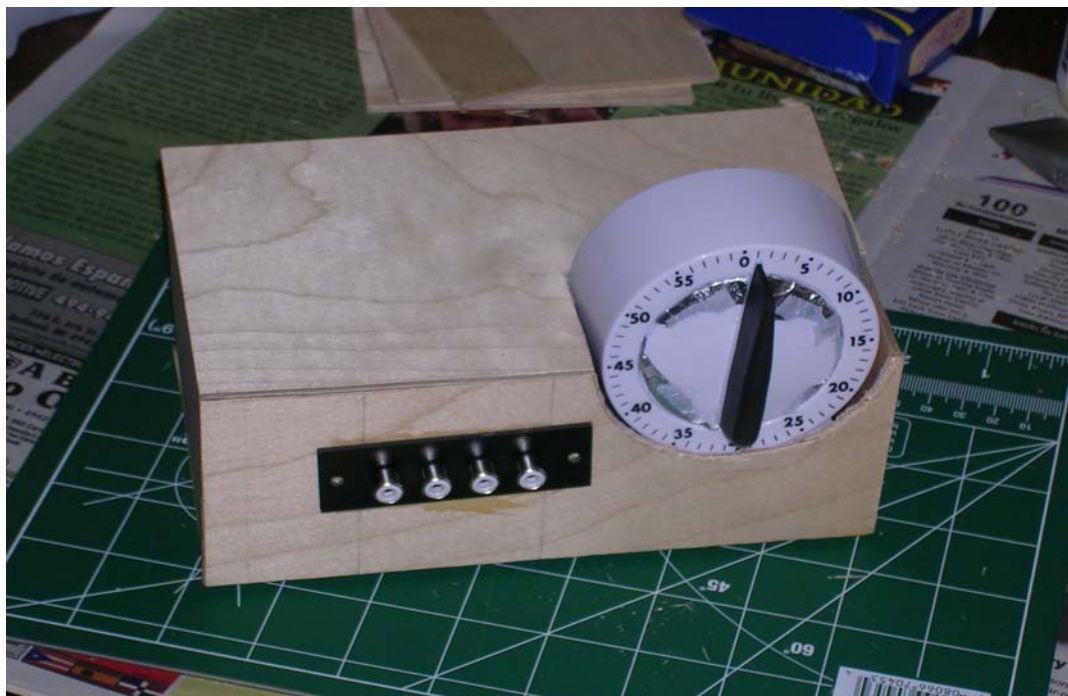


Figure 2: The completed project inside its protective box

Summary

Many gamers want to ply their art of playing video games such as *Super Smash Brothers* and after brief but furious calculations know that they can afford to spend some amount of time, such as fifteen minutes, on such frivolous pastimes. However, once play begins, it is almost like a drug that takes away all sense of time and by the time the gamer is capable of stopping, it is already much later than he had intended, taking away any free time he still had left for that evening or causing him to miss important appointments. The purpose of this project is to design a way to allow gamers to easily and spontaneously play video games without them spending more time than their assessment of available time. This device should be able to prevent the user from continuing to use the game system when the allotted time expires, keep time fairly accurately, and allow the time to be allotted in fairly small increments (of approximately five minutes). Also, to reduce player frustration, a warning of some sort before the imminent shutoff of the game is preferable, as is some way of telling how much time is remaining.

Most of the concepts considered focused on controlling either the power supply to the console or the audio/video signals sent from it to the television coupled with various types of timers, such as a store-bought wind-up timer or digital timer, although other methods of control, such as pressing the power button on the console were also considered. In the end, the latter method was chosen as it would reduce player frustration since running out of time in long games, such as *Metroid Prime*, where save points can be few and far between would not cause the user to lose everything accomplished since picking the game up by allowing him to come back later to finish up.

In the design constructed, the AV signals are channeled through amplifiers with unity gain. While time remains, the amplifiers are on, allowing the signal to pass by with minimal distortion, but when the amplifier is turned off by the timer, the signal must instead pass through the resistors used to balance the amplifier causing it to be drastically diminished. This allows for the user to finish up what he is doing, but greatly discourages continued use as the video signal is too badly distorted to continue to enjoy normal play.

The timekeeper is a standard wind-up kitchen timer that has been modified slightly to complete an electric circuit. It possesses two such loops. The first one is a contact between two pieces of aluminum foil to allow power to be supplied to the audio amplifiers. These cut out a few minutes early, as intended, in order to serve as a warning to the user by diminishing the sound. The second connects two wire ends to complete a circuit grounding one of the inputs to the video amplifier which has similar results: the screen becomes so dark that the game is barely playable (and some not at all).

Overall, the device works pretty well. When the timer reaches about two minutes remaining, the sound is reduced by a fair amount, giving the player notice to finish up. Once the timer runs out, the intensity of the video is dramatically decreased to a level where some games or areas within games are completely unplayable while others are playable only with difficulty. For *Super Smash Bros.*, these two factors together give the computer a significant advantage, but the player is still able to finish the level. However, the results screen after the match is barely above a pitch black screen. This is exactly at the intended level as it allows the players to finish up the match, but there will be no incentive to go on any farther because play will be too much of an annoyance.