sanjaybhat2004 Update readme.md 8f09faa · 10 months ago

Logisim	refactored	10 months ago
Snapshots	refactored	10 months ago
Verilog	first commit	last year
Video	added video demonstration	10 months ago
readme.md	Update readme.md	10 months ago

DDS - Mini Project S2 - T23

Team Members

▼ Details

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Abstract :

▼ Details

The Car Parking Lot System project is a cutting-edge solution designed to streamline the parking experience in valet controlled parking lots. This innovative system uses very simple yet effective technology to enhance efficiency, convenience, and security for both vehicle owners and parking lot operators. Key features of the Car Parking Lot System include: Automated Entry and Exit : The system automatically takes care of the entry time and exit time without anyone present to record it. The system can be integrated with Machine Learning or similar algorithms which allow seamless counting of cars based on the parking lot assigned to it . This way it can be fully automated . This model however is based on a simpler implementation which does not use such algorithms and requires the valet to select the entry and exit of a car. Contactless Payment: Users can pay for parking digitally through mobile apps or online platforms, eliminating the need for cash transactions and reducing waiting times. The cost to be paid is displayed by a digital monitor and can be integrated to only allow passage if the money was fully paid. (Similar to fastag in the modern era). Sustainability: The system can be integrated with energy-efficient lighting and eco-friendly materials, reducing the environmental impact of the parking lot. Easy Access of lots : This system efficiently picks out an available parking lot number and displays to move there . This way we need not worry if there is availability of parking lots inside and can simply rely on the system to tell us this information. Further if available we need not to take the car inside and look for an empty lot since the empty plot number is already assigned to the car by the system. The Car Parking Lot System optimizes the use of available space, reduces congestion, and provides a convenient and hassle-free experience for users, making it a valuable addition to modern urban infrastructure.

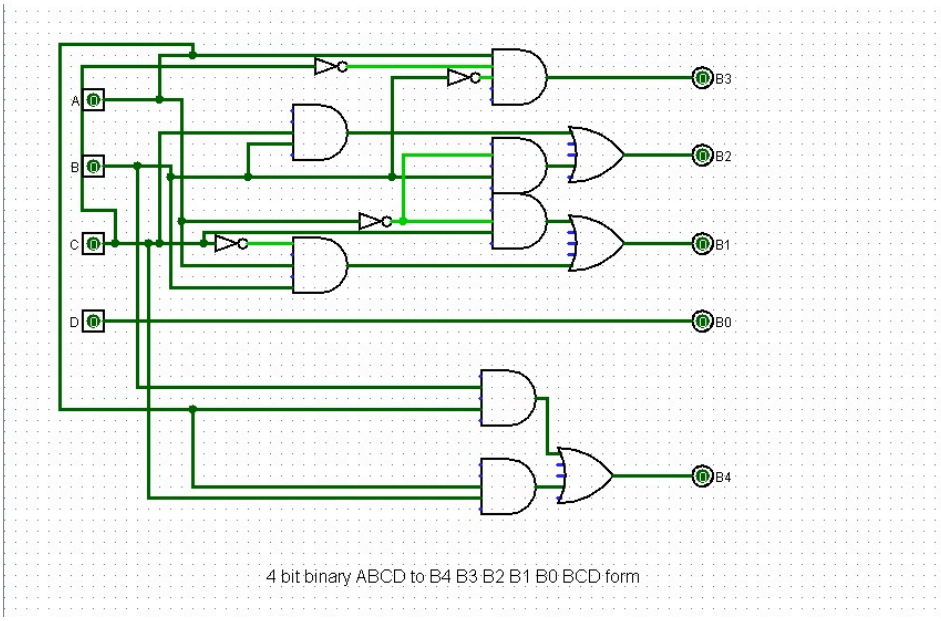
Working

▼ Details
Functional Table
▶ Details

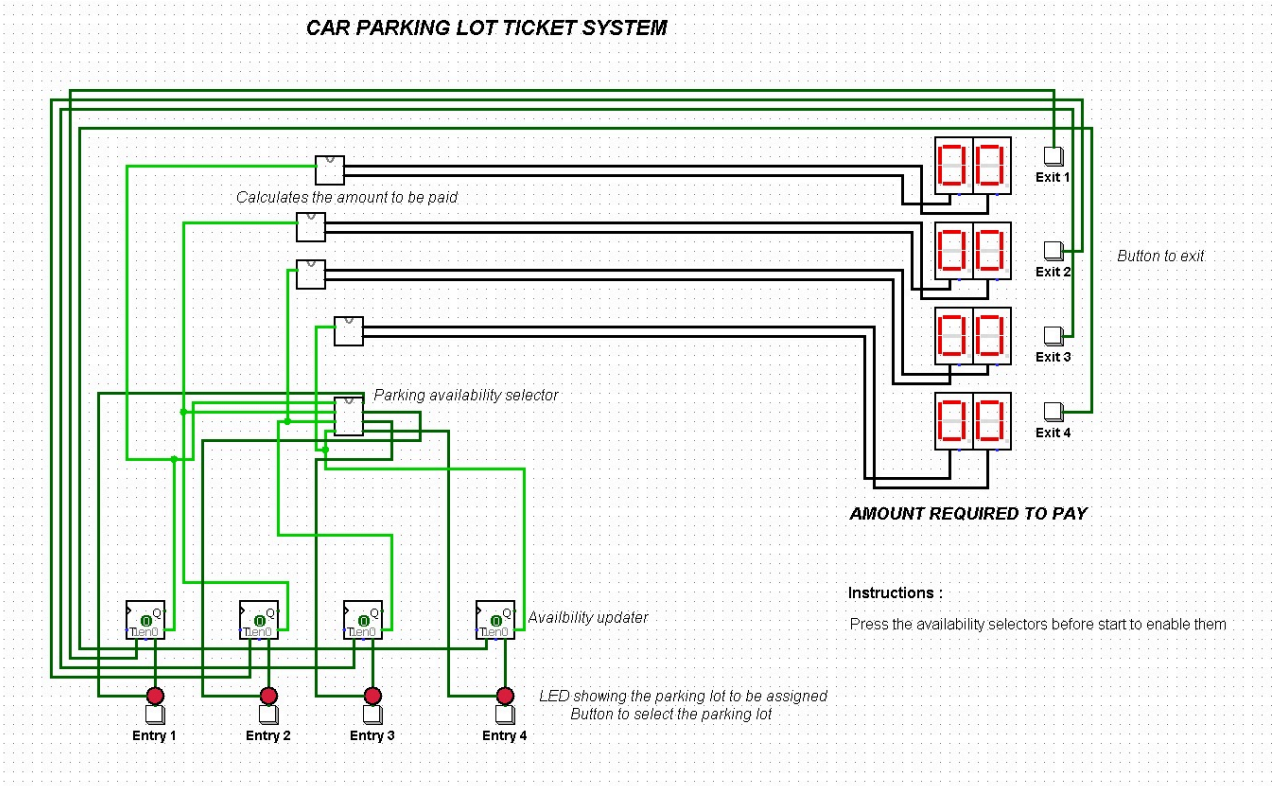
The working of this project is as follows : The system has an inbuilt program that allows it to determine which parking lot is empty based on the entry and exit . Initially all the parking lots are available . The system shows the parking lot which is to be assigned with the help of a LED which displays green, all the LEDs show red if there is no parking lot available. The valet is then expected to choose the assigned parking lot by the system by pressing a button. The button is connected to a T flip flop which ensures that after a vehicle leaves the parking lot assigned to that vehicle is now marked available. If multiple parking lots are available the system shows the closest one to the entry. When the valet presses the button to enter, a clock is set off with respect to the corresponding lot which ticks until the car is removed. The cost is 2 Rs / hr and the store functions for only 7 hours a day hence the parking lot system is by default reset after 7 hours . (i.e each car is only allowed a max duration of 7 hours in the parking lot) . The cost is calculated every time an hour is passed by using a multiplier for each lot which multiplies the cost and the duration of stay. A clock in the circuit is implemented by using a register which is attached to the output of an adder, whose input is the output of the register. The register is made to update every time by a clock pulse which oscillates with some frequency. The cost is however in binary and we are required to convert this into BCD to display it in a HEX LED display which shows the final cost at a given instant of time. This is done by a 4 bit binary to BCD converter. Thus the cost on the LEDs is the cost to be paid by the user which the valet will deduct from the tabs of the user. During exit the valet deducts the required cost and then presses the button to allow exit (which can be thought of to trigger a gate which allows the vehicle to pass). This action also triggers the T flip-flop associated with this lot and updates the system's data to make that parking lot available .

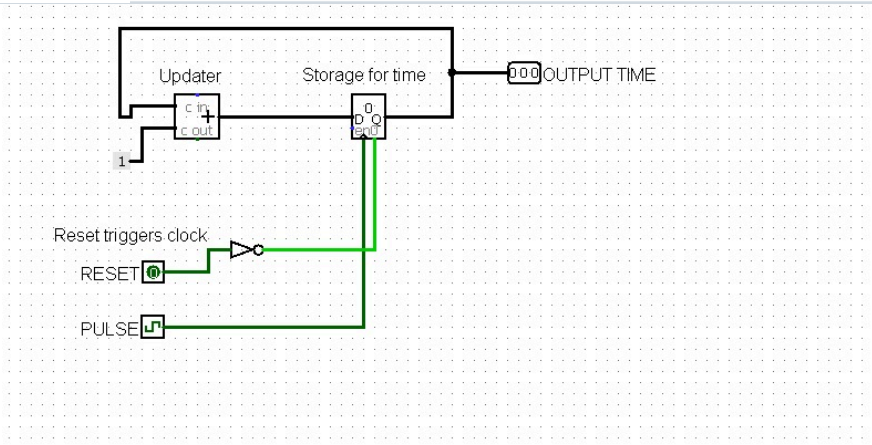
Logisim Circuit Diagram :

▼ Details

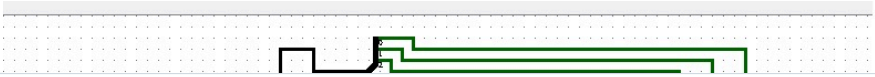


The time for each lot is calculated according to the followng image:





The cost is multiplied and converted to BCD in the following image:



Releases

No releases published
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Packages

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Contributors 2

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Languages

- **Verilog** 100.0%