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ABCT Operating system with Half to First scheduling and Interrupt Generate Tasks

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ABSTRACT
Entertainment have more important in new style. People try to arrange a movie theater in home itself. Faster operating system is required for creating theater at home. The proposed system is ABCT Operating System which consists of the components named half to first scheduler, colour dot communicator and ABCT Kernel .The Half to First Scheduler (HFS) to provide high performance by half to first scheduling to schedule the task in the operating system .Color dot communicator is to communicate between the tasks. Task severity is introduced in the system to find the fix the fault. The ABCT kernel consists of commands which communicate with the processor by the help of interrupt generation.

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I. INTRODUCTION

More and more people are eager to recreate the movie theater experience at home. But what exactly entail about how the data is expressed. A home theater can be as simple as a few Audio Video devices in your living room or as complex as a completely renovated basement designed to look like Hollywood theater. The purpose of core home theater system should provide a high-quality video experience and an immersive audio experience that breathe life into your favorite movies, video and audio songs. This primer offers a general overview of the basic home theater ingredients–from the AV equipment to the seating to the other room elements that can shape your perfect home theater.

Fig1.Projector

Picking the right display for the home theater system

Projection system and a very large screen are the important part when you envision a theater-like video experience. That's certainly the display of choice in the prototypical home theater. The two-piece projector/screen combination is the best suited for a dedicated screening room in which you can completely control the lighting, but the manufacturers now offer high-brightness projectors and ambient-light-rejecting screens that are specifically designed for use in brighter environments. Companies like SIM2, Barco, and Digital Projection International offer projectors and services targeted more at the high-end marketplace, around $50,000 and above. However, projectors are not only for the wealthy but also for middle class family. This type of display device can actually offer the best screen-size-to-cost ratio. Companies like JVC, Sony, Optoma, and Epson offer high-quality mid-level and entry-level projectors.

On the projection screen of the theater, you can choose between fixed-frame, pull-up/-down, or motorized screens, and most screen manufacturers offer a wide variety of screen materials to suit different projectors and environments. You also need to think about the required screen shape. You have a standard 16:9 screen that's perfect for HDTV and many movies, or a 2.35:1 screen that lets you watch Cinema Scope movies with no black. Another option is to add a masking system that uses drapes or panels to tailor the screen shape to suit each source. Some of the top names in home theater like stewart filmscreen**,** screen innovations**,**da-Lite**,** vutec**,** elite screens etc**.**

Fig2.LCD Screen

The two-piece projection system isn't the only option in the display realm. Flat-panel TVs are pretty much the driving force in the home entertainment marketplace; and, thanks to constantly falling prices, you can now get a much bigger screen for your money. Whether you invest top dollar in an 85-inch-plus panel or go with a more modest 65- to 75-inch screen, the flat-panel UHD TV can still make a great foundation for a home theater system, and the benefit is that you can watch it in all kinds of lighting conditions.

Over the years, several different TV technologies have competed for consumer dollars. In the past, most enthusiasts would point you to plasma TVs, like those offered by Panasonic and Pioneer, to get the best home theater performance–that is, the deepest black level and highest contrast ratio to create a rich image in a dark, theater-like environment. Of course, plasma panels are no longer in production. The most popular flat-panel technology these days rely on lcd technology, which was once considered a bright-room-only solution but has made great strides in performance. Technologies like full array local dimming via LEDs instead of CFLs and 120Hz/240Hz refresh rates have helped overcome limitations in black level and motion blur that previously made LCD screens less-than-ideal for movie viewing. All of the big names in LCD–including Samsung, Sony and LG–now incorporate these performance improving features.

OLED is another flat-panel TV technology that has recently replaced plasma as the videophile's choice. Like a plasma TV, an OLED TV's pixels generate their own light, so the TV is capable of a much deeper black level than an LED/LCD TV. An OLED TV also can be brighter than a plasma, so in many respects it offers the best of both worlds.

Home Theater Speaker Systems (5.1, 7.1)

Fig3.Speaker system

The other main element that makes a trip to the movie theater so memorable is the enveloping audio, in which sound elements come at you from all directions. At home, the most basic surround sound speaker system consists of 5.1 channels. The "5" stands for speakers in the front left, center, and front right, rear right, and rear left positions, while the ".1" belongs to a subwoofer that helps flesh out the bass for explosions and other low-end effects. Some home theater installers recommend the use of multiple subwoofers to help deliver smoother bass response across a wider listening area. It's also popular to go with a 7.1-channel speaker system, which uses two side-channel and two rear-channel speakers for a more complete surround experience. The latest trend is object-based audio, in which formats are dolby atmos and DTS:X add an overhead sound element that provides an even more immersive audio experience.

Speakers comes are of all shapes and sizes, from freestanding towers to bookshelf models to thin speakers that mount on or in the wall. Nowadays it's easy to find speakers that are low in profile but high on performance–through companies' most commonly definitive technology, goldenear technology, and many more. Going with such small speakers really makes your choice of a subwoofer all the more crucial

You have more freedom to pick the exact speakers you want, regardless of size or aesthetic, and to position them in the ideal positions to get the best performance. On the other hand, you're trying to incorporate your home theater system into an existing living or family room, or perhaps you just don't like the idea of cluttering the room with speakers. In that case, in-wall or in-ceiling speakers may be just what the home theater fan ordered. speakercraft, sonance, polk audio, and Atlantic Technology are just a few companies that offer high-performing in-wall/in-ceiling models at many price points. In-wall and in-ceiling subwoofers are also available.

If you like the idea of surround sound but simply can't find a way to practically integrate a multichannel speaker system into your room, the soundbar has become a popular solution. A soundbar incorporates multiple speaker channels into a single speaker bar that mounts above or below your TV. While some soundbars also come with wireless surround speakers, these devices often instead use pyschoacoustic manipulation to create a sense of surround envelopment, sometimes through digital sound processing and sometimes by bouncing the sound off the walls (and sometimes both). This solution generally doesn't offer the precise effects placement and higher-end performance you can get from separate speakers, but it's a good small-room or apartment solution. It's also a great option for somebody who is unhappy with the quality of their TV speakers and wants an upgrade in sound quality, a common issue with flat-panel TVs. Polk Audio offers some great soundbar solutions, as do Vizio, Yamaha, Zvox, and Definitive Technology.

Fig4. Denon

Home Theater components

The electronics are the brain of the home theater system. They receive the audio and video signals from your source devices and distribute them out to the speakers and display device. Electronics fall into two main categories: AV receivers and separates. An AV receiver puts everything you need in one chassis: One box contains all of the AV inputs to connect your devices, the processors that decode the audio and video signals for output, and the amplification that powers the speakers. Some popular receiver manufacturers like denon, and Pioneer.

II. ABCT OPERATING SYSTEM

The proposed operating system is a real time operating system which uses half to first scheduling algorithm to schedule the task in the system. Colour dot communicator helps to communicate tasks and resources. Interrupt commands in the kernel communicate the Operating System with the processor quickly.

HALF TO FIRST SCHEDULER

The half to First (HFS) scheduler schedules by first complete the half of all the task, then complete the task which have least run time. The task are interdependent and communicate by colour dot communicator. We can have look at the example given below where maps the task scheduling and its interdependency T1 needs 5 unit time to complete and its depending on T3.Similarlly all other tasks and its interdependency is shown in the table given below.

T1	5	T3
T2	15	T5
T3	1	T3
T4	5	T4
T5	7	T6
T6	14	T6

Fig5.Task run time and dependency

Task T1 executes 3 unit that's means half round of time and T2 executes 8 round of time.T3 executes 1 unit time and so on complete the half round scheduling .Next check the task which have least completion time. Schedules the least running time till reach the completion of last task. Priority Queue is used to keep all the task before scheduling. The priority is depends on the interdependency.

3	8	1	3	4	7	2	7	2
T1	T2	T3	T4	T5	T6	T1	T2	T4

Fig6.Half to First Scheduling

3	7
T5	T6

COLOUR DOT COMMUNICATOR

Colour Dot Communicator (VIBW Communicator) uses colour dot to communicate. The task can hold different colour dots before its execution. There are four colurs named Violet dot, Intigo dot,Blue dot and White dot. Those who hold the colour dot violet free the resource after quarter of completion and move to waiting state. The task release after half of completion if its holds intigo dot and move to waiting state. Those who hold blue free the resource after 3/4 of completion and move to waiting state.The task free the resource after full completion if its holds white colour dot.

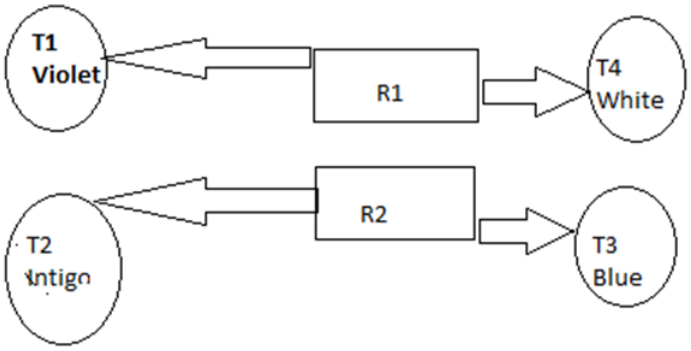

Fig.7 Colour dot communicator

The task T1 require 4 unit time to complete. Task T2 needs 2 unit time to complete task 3 require 6 unit to complete and t4 require 1 unit time to complete and its comes in the order T1, T3, T4, T2.There are two resources namely R1 and R2.The task T1 holds violet so quarter of task complete using the resource R1.T4 holds white and its run time is 1 unit time. So the resource R1 is given to T4.T2 holds the colour dot Intigo.so half of task completed and move to waiting state.T3 holds blue colour dot.so it holds ¾ of task completion.

ABCT KERNEL

The proposed kernel generates interrupts while entering commands and communicate with the processor. The interrupts depends on processor to processor. So the kernel is depends on processors. The Home theater system have less processor interaction. But it require fast response time. In the kernel the commands or communication are Ain,Bin,Cin,Din etc. Each have different purposes. Each processor have different interrupts. But the commands are common for all the processors.

III. CONCLUSION

The proposed operating system works in real time with high performance because of interrupt generation commands. This Operating System is the most suited operating system for home theatre.This operating system is suited for systems where less commands requirement

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