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Task Scheduling of Virtual Machines and Smart Vehicles in Smart Manufacturing Environment

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Abstract.

Although much research has been done on the Cooperation Mission (FMS) program, the focus has been on the well-known learning process. Clever concept For interaction options in JSSE (Computer Scheduling Environment) that often use simple models, the notes in FMS provide less help than usual in displaying them. This article is devoted to the analysis of the machine and AGV planning to obtain the criteria for reducing the average delay in the FMS system with Scheduling Algorithm (SA). The concept can be tested on various topics with the 40 question FMS entertainment model.

Keywords: Hadoop Scheduler, Task scheduling, Artificial intelligence and Makespan

1. Introduction

Although there is no clear meeting definition for FMS; Groover (1987) defines FMS as an integrated system that includes the configuration of numerical control (NC) machines associated with PC-controlled AGVs and configuration to control low to medium interest rates. in various places. Given the number of CNC machine tools and their relationship to material handling, many classes of polymer models will be expanded. Some have been reviewed by Dupont (1982), Browne et al. (1984) and Kuciak (1985). Throughout the life cycle, FMS controls many issues. Buzacott and Yao (1985), Suri (1985), and Kusiak (1986a) acknowledge some of these problems and evaluate the planning process. These questions can be grouped by tasks, values, and ideas. FMS can also be thought of as a computer store. However, by its nature, equipment, tools, robotic vehicles (AGVs), beds, etc. are involved in the functioning of FMS. must be taken into account because the machines and material responsible for the frame are equally balanced and cannot be counted. It is necessary to take into account some things when preparing the options: Choose jobs and paid courses. Moreover, the strong concept of FMS exacerbates these problems. This article focuses on research design based on the FMS reservation problem. This problem is seen as a strong business class in the market reservation problem. Planning policies regarding FMS have been finalized. Accepting the average flow time as the representation model The valid decision rule is often used. The use of special methods includes: (I) Online planning of machinery and equipment transportation products based on actual operation (2) Planning algorithms in offline mode. Panwalkar and Iskander (1977) introduced more than 100 rules and distinguished them between assignment rules, assignment rules and priority rules. Sufficient literature exists for these policies (Conway et al. 1967, Blackstone et al. 1982, Kiran and Smith 1984a, b

2. Scheduling Algorithm Design

The ideas of this study were derived from a study conducted by Bilge and Ulusoy in 1995. The data contained information about various machines, their operating hours, and a matrix

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representing the travel times of these systems. As shown in Figure 1, this setup includes four CNC machines equipped with pallet changers and tool setters.

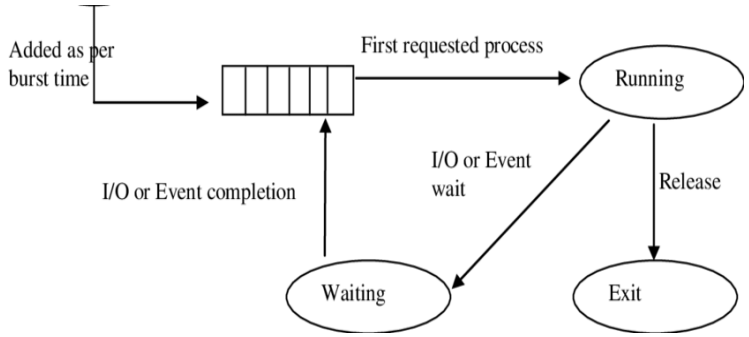

Figure 1: Basic structure of Scheduling Algorithm

Scheme 2 and task 4 are responsible for executing SA using movement time as an example. 4. Setting Decisions

Step 2: Put position "7" first in the main line1-2-3- 4-5-6-11-12-13-14-7-8- 9-10- 15-16 -17 - 18-19

Stage 3: Find the time to reach maximum performance. It refers to the completion time (makespan) of a group of tasks. Stability estimates of different parameters for each activity are shown in Table 1.

Table 1. Completion Time Using SA

Model No	M.No	V.No	TT	JR	Job Reach	PT	MS
1	4	1	0	6	6	11	17
2	1	2	17	25	25	10	35
3	2	1	35	37	37	7	44
4	3	2	31	39	39	12	51
5	2	2	51	63	63	10	73
6	4	1	73	77	77	8	85
11	2	2	71	77	77	7	84
12	4	2	84	88	88	8	96
13	1	1	96	104	104	12	116
14	2	2	116	118	118	6	124
7	2	1	110	116	124	7	131
8	3	1	131	133	133	10	143
9	1	2	143	153	153	9	162
10	3	1	162	166	166	8	174
15	1	2	159	163	163	9	172
16	2	2	172	174	174	7	181
17	4	2	181	185	185	8	193
18	2	1	193	203	203	10	213
19	3	2	213	215	215	8	223

Table 1 shows activity planning of through SA rule for work set 4 designs 2 is appeared with process time triple and process time double. The operational culmination time (makespan) is 223

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3. Results and Discussion

The FMS workshop situation introduced here with exhibits the job set EX4 and layout 2. In last digits 0 or 1 represents process time double and triple in two cases travel times are half only.

TABLE 2. Execution examination (t/p<0.25)

Job	Layout	(Di)	(Li)	(Ti)	Operations	Tardy operat
MD1	1	230	-37	0	13	0
MD 2	1	230	-72	0	15	0
MD 3	1	230	-6	0	16	0
MD 5	1	230	-66	0	13	0
MD 7	1	230	-20	0	19	0
MD1	2	190	-17	0	13	0
MD 2	2	190	-66	0	15	0
MD 3	2	190	-2	0	16	0
MD 5	2	190	-46	0	13	0
MD 6	2	190	-21	0	17	0
MD 7	2	190	-30	0	19	0
MD 8	2	190	-9	0	20	0
MD1	3	194	-19	0	13	0
MD 2	3	194	-64	0	15	0
MD 3	3	194	-4	0	16	0
MD 5	3	194	-48	0	13	0
MD 6	3	194	-23	0	17	0
MD 7	3	194	-28	0	19	0
MD 8	3	194	-11	0	20	0
MD1	4	256	-49	0	13	0
MD 2	4	256	-82	0	15	0
MD 3	4	256	-6	0	16	0
MD 5	4	256	-67	0	13	0
MD 6	4	256	-4	0	17	0
MD 7	4	256	-14	0	19	0
MD 6	1	230	10	10	17	1
MD 8	4	256	29	29	20	1
MD 8	1	230	31	31	20	2
MD 4	2	190	33	33	19	2
MD 4	1	230	37	37	19	2
MD 4	3	194	43	43	19	2
MD 4	4	256	45	45	19	2
MD 9	1	230	47	47	17	3
MD 9	4	256	55	55	17	3
MD 9	3	194	57	57	17	3

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MD 9	2	190	59	59	17	3
MD 10	1	230	78	78	21	4
MD 10	4	256	94	94	21	4
MD 10	2	190	98	98	21	5
MD 10	3	194	100	100	21	5

Within the context of optimizing the configuration of Automated Guided Vehicles (AGVs) and machines, priority rules are utilized to handle three distinct processing time values. These rules are detailed in two separate tables. An examination of the make span and mean flow time for various job sets and layouts is visually depicted in Figures 2.

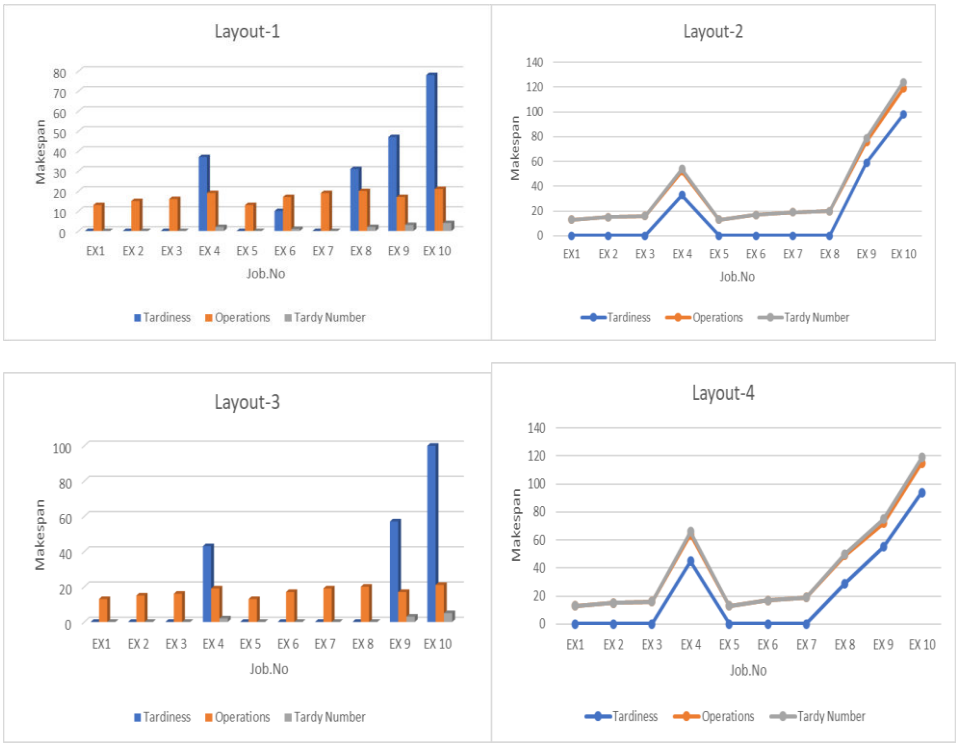

Figure 2: No of Operations in Scheduling Algorithm

4. Conclusions.

The FMS problem was solved with the help of SA by reducing late work in the system with 4 layouts, each containing 4 identical machines and two transport machines. This study included not only the programming of machines but also the programming of AGVs and the results are as follows. According to the research, if the activity in the body increases, a diet is made. the number of machines and AGVs will also increase the sensitive issue during the completion of FMS is that there is no late work in the body Product transportation of AGVs and machines, as scheduling increases, the number of jobs in the system is important, the use of the FMS system as it increases, the number of delayed jobs will also increase. SA rule tested 40 times. The number of transactions across all aspects of the system. SA rule along with AGV rule is best. Create or apply new rules There are many daily situations in the FMS environment.

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