

# Capacity Management Systems

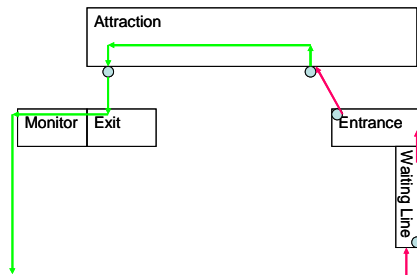
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Managing the capacity of Theme Park attractions and revenue-generating facilities is becoming increasingly important with the growth of park visitors and the resulting increase in waiting times.

Multi Motions provides a number of advanced solutions to keep track of traffic, to inform park visitors and offer solutions to plan an entire park day both for visitors and park management.

## Managing the capacity

### Collecting occupancy data



To be able to manage the capacity of attractions in the park, information is needed about the occupancy and if possible of the anticipated occupancy.

A novel sonar sensor is used to count the number of people passing the entrance and exit of the waiting line, giving immediate information about queue length and waiting times per attraction.

Using the same sensors at the entrance and exit of the loading area provides information about ride time and occupancy.

### Displaying the results

Orientation	Trains	Goal	Party	A1	A2	C1	C2	
Deck_Bottom	2	A5637	3	33	31	811	144	
Ride_Type	Car	A2799	3	26	31	61	74	
Ride_Type	Car	A5693	3	29	27	619	160	
Ride_Type	Car	A5693	3	37	36	83	101	
Ride_Type	Car	A1598	3	26	25	68	124	
Ride_Type	Car	A1954	3	21	17	86	122	
Ride_Type	Car	A2784	3	29	25	84	108	
Ride_Type	Car	A3546	4	35	37	83	97	B5:113
Ride_Type	Car	A4437	3	34	37	86	118	
Ride_Type	Car	A5289	2	37	42			
Ride_Type	Car	A610	3	36	37	612	192	
Ride_Type	Car	A2787	4	36	41	612	193	B6:116
Ride_Type	Car	A3848	4	28	33	612	141	G6:112
Ride_Type	Car	A4487	4	28	29	88	138	B11:143
Ride_Type	Car	A496	3	26	25	89	130	
Ride_Type	Car	A5229	3	41	39	81	75	
Ride_Type	Car	A5436	3	37	32	68	122	
Ride_Type	Car	A73	3	28	28	66	111	
Ride_Type	Car	263:1104	1	1	1	1	1	

By directly feeding the collected information into the Park Management and Simulation system, a comprehensive real-time overview can be given of the occupancy of all major attractions.

For those attractions that have not been equipped by automated sensors and to keep track of customer flow, missing data is estimated to simulate the probable behavior of all unmeasured data.

A total overview is given and calculations are made for each attraction. Suggestions are made automatically to relocate capacity for those attractions that may change capacity dynamically. Also visitor flow may be influenced by relocating capacity.

Total capacity information is kept up-to-date and is written to log files for later statistical analysis. This real-time information may be used to make sales analysis and to make better predictions about attraction capacity.

Orientation	Connections	Ticks/Cycle	Agents	Infill
0	2	60	2627	0

Connected	ReportEnvr	People	Restaurants
1->Route23.1	900	8221	1111
1->Route9.2			

ReportAltr	Walking	Shops
0	1968	0
ReportRoute	Riding	Waiting
0	998	6253

ReportAgent	Eager	Snake
<input checked="" type="checkbox"/> Attractions	0.5	0
<input type="checkbox"/> Routes		
<input type="checkbox"/> Remarks		
<input type="checkbox"/> Summary	Snakers - 0	

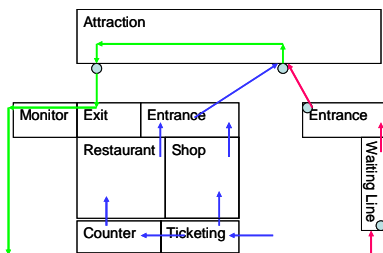
CmdFile: R2W Ratio: 12.1 - 1.4 / 76.1 - 23.9

Command: E:\Klantenv\Eteling\Tools\Script.txt

Message: 16:00:00 Env Message "Agents stopped" Python opened

### Advising Visitors

Visitors are informed about current waiting times either by automated information panels throughout the park or by monitors at the exit of the attraction. The Park Simulator may be used to determine the optimal location and number of these information signs.



In addition small restaurant/shop combinations may be assigned as dedicated waiting areas. Using the reservation system, customers may spend their waiting time in this designated area where merchandising and snacks are sold.

A dedicated counter and ticketing entrance ensures that the waiting area is only used by customers, intending to spend their wait in the waiting

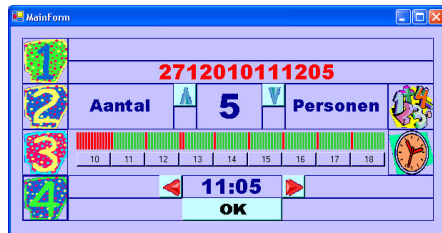
area. Waiting times for nearby attractions and restaurants are displayed in the exit area, allowing visitors to determine their next stop in the park, based on current occupancy times.

By using selective display of information, visitor flow may be influenced, effectively managing the capacity of attractions and managing flow of visitors through the park.

## Making Reservations

An important part of the Park Management approach is the introduction of a general reservation system that consists of three levels. The most basic level are the attraction ticketing systems. Here customers can make a reservation for a single attraction. The second level consists of terminals that allow visitors to make reservations for a number of attractions, planning their entire day. The third level allows customers to book and plan their entire day in advance, using the Internet from their home.

### Booking for one or more attractions



Using their entrance ticket, a family may make a reservation for an attraction.. The visitor has the option of selecting a certain time block, provided sufficient capacity is available. This way visitors have more influence over the way their day is spent.

Keeping track of reservations, visitors cannot overbook their day which ensures that visitors keep sufficient time between rides to allow for restaurant and shop visits.

### Planning the entire day

Dedicated terminals at a central location in the park are used to allow visitors to make reservations for a number of attractions. Using the same facilities as with the single attraction station, customers are guided to make a realistic plan that leaves enough time to visit restaurants and shops.

In addition a better balancing of attraction capacity over the day is achieved by spreading the available capacity. This will delay the sold-out syndrome that is associated with automatic time slot assignment.

### Planning in advance

The third option is to allow customers to use the Internet to plan their entire day in advance. By having customers book and pay in advance, park management has two additional advantages:

1. Customers who book in advance will tend to forget the payment of the entry fee and may spend more money during their visit as a result.
2. By collecting advance booking information some indication of probable occupancy may be calculated and used in predicting the total volume.

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