The Dynamic Schedule Module (DSM)

A SUMMARY

The Dynamic Schedule Module (DSM) is a product of **IntelliPort, Inc.** It offers the industry two unique tools: A **Simulator**, which helps determine the recruitment needs, and a **Schedule Generator**, which generates cost-efficient schedules based on the forecasted demand and allows the manipulation of those schedules as the demand changes, simultaneously.

This product minimizes the cost of human resources while considering the operational requirements and adhering to the labor laws and company regulations.

It generates cost efficient schedules using the demand input, the configuration of the labor force, the labor law and company regulations, as well as other cost factors. The total cost could incorporate salary cost, overhead cost, overtime cost, transportation cost, food allowance cost, and any other relevant cost such as idling cost or the cost of requesting staff to be "On-Call".

The system accepts inputs related to:

1. The Employees: Such as employee name, identification number, position title and qualifications (e.g.: RTG operator qualified to operate RS and TT), and skill level (on a scale of 0 to 10).
2. Labor laws and company regulations that affect the maximum hours that a staff member can work, given the following:

    - Daily Working Hours
    - Daily Rest Hours
    - Consecutive Working Hours
    - Consecutive Working Days
    - Weekly Working Hours
    - Weekly Rest Hours
    - Monthly Working Hour

The system considers the decision to schedule someone to work less hours than the maximum allowed depending on the benefit of doing so compared to the fixed costs for every time he/she is scheduled, such as costs related to transportation (to and from the workplace), food allowance, and incentive.

The possibility of Overtime and the concept of having staff "On-Call" are as well accommodated for. Overtime and On-Call are defined as the number of hours a staff member can attend beyond the Normal Hours (number of hours contractually agreed to upon the labor law and company regulations).

Overtime and On-Call can be accommodated on a daily, weekly, or monthly basis. The On-Call can be assigned from the beginning of the month, whereas the Overtime can be considered based on the Actual Attended Hours whenever the Actual Attended Hours overpass the Normal Hours.

An On-Call assignment may result in one of three possibilities:

1. On-Call – not attended: The Hours assigned but not attended due to lack of need;
2. On-Call – attended with no Overtime: The total number of Actual Attended Hours, including the On-Call hours, does not exceed the Normal Hours; and
3. On-Call – attended with Overtime: The total number of Actual Attended Hours exceeds the Normal hours.

The schedules generated by the system also consider the following logic:

- **Skill level**: The system allows the entry of a "Skill level" depending on the employee's level of productivity. The system ensures that for every shift, different levels of productivity of staff are introduced. This aims for a consistent performance across all shifts so that one does not end up with a radical difference in shift performance.

- **Adjustments to the schedule**: The system allows the application of adjustments such as Adding/Dropping on demand.

- **Flexibility of the system**: The system allows dynamic allocations, the selection of different Start/End times of the shift of a specific employee and provides flexible shift lengths for all employees. (e.g.: An STS operator's shift might be set from 8 to 2, while another's shift might be from 9 to 1).

- **Rotation of Operators**: The system allows a multi-skilled staff member to operate different types of equipment as needed by demand.

- **Allocation of Relief**: The system allows for the scheduling of relief staff.

- **Equity**: The system ensures that all staff are given equal opportunities and a fair distribution of tasks through:

    - Fair Allocation of Hours: The work-load is distributed fairly.
    - Fair Allocation of Overtime Hours: The overtime hours are allocated equally.
    - Fair Allocation of Night and Day Hours: The employees rotate fairly between day and night shifts.
    - Fair Allocation of Staff Among Equipment: The system ensures that the employees fairly rotate between the different available equipment (e.g.: If available cranes have different operating speeds, the system ensures that the operators of this particular type of crane rotate fairly among all available cranes).

The DSM can integrate with the Terminal Operating System (TOS) to automatically and dynamically receive the demand for work. Moreover, it can also integrate with the Enterprise Resource Planning (ERP) system to provide the exact working hours for each staff, including Overtime and On-Call hours, and therefore allow immediate generation of the payroll.