

ANALYSIS OF DEVELOPING FUTURED MECHATRONICS SYSTEM BASED INDUSTRIAL MOBILE SYSTEMS

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ABSTRACT

Industrial applications involves in mobile systems, like common applications (raw material handling, work in process movement, finished product handling), primary applications in industries (automotive, manufacturing, hospital, food and beverage, pharmaceutical). It is known that industrial mobile systems are using battery charging through any power station sources. Due to this, consumption of electric power is more. If we replace solar power or magnetic powered engines in this industrial application involving mobile systems, we can minimize the consumption of electric power up to controllable limits. In this paper we suggested system methodologies for how to develop solar powered or magnetic powered engines for industrial mobile systems.

Keywords: *Magnetic Engines, Materials Handling, Mechatronics system, Magnetic Repulsion Piston Engine (MRPE), Solar Energy.*

1. INTRODUCTION

A material handling as such is not a production process and hence does not add to the value of the product. It also costs money; therefore it should be eliminated or at least reduced as much as possible. However, the important point in favor of materials handling is that it helps production. Depending on the weight, volume and throughput of materials, mechanical handling of materials may become unavoidable. In many cases, mechanical handling reduces the cost of manual handling of materials, where such materials handling are highly desirable. All these facts indicate that the type and extent of use of materials handling should be carefully designed to suit the application and which becomes cost effective.

As innumerable different materials are used and need to be handled in industries, they are classified based on specific characteristics relevant to their handling. Basic classification of material is made on the basis of forms, which are.

- Gases (Pneumatic Conveying).
- Liquids (Hydraulic Conveying).
- Semi Liquids (Hydraulic Conveying).
- Solids (Industrial Mobile Systems).

Solids form the majority of materials which are handled in industrial situation. Solids are classified into two main groups.

- Unit load.
- Bulk load.

The functions of materials handling have been referred to which are conveying, elevating, positioning, transporting, packaging and storing. Storage or warehousing is very much a part of materials handling. Materials handling uses different equipment and mechanisms called Materials Handling Equipment [1].

2. FUNCTIONAL SCOPE OF MATERIALS HANDLING WITHIN AN INDUSTRY

- Industrial packaging of in-process materials, semi finished or finished goods, primarily from the point of view of ease and safety of handling, storage and transportation. However, consumer packaging is not directly related to materials handling.
- Handling of materials for storage or warehousing from raw materials to finished product stage.
- Bulk materials as well as unit materials handling. Bulk handling is particularly relevant in the processing, mining and construction industries. Unit materials handling covers handling of formed materials in the initial, intermediate and final stages of manufacture.

3. SYSTEMS CONCEPTS

The term “system” has many meaning depending on the field where applied. It refers to a complex unity formed of many often diverse parts subject to a common plan or serving a common purpose. In an industry, materials handling is a subsystem (or part) of the production system. Materials handling [2] itself can also be considered to be a system.

3.1 Unit loads Classifications are based on

- Shape of unit load.
- Position of C.G. (stability) of a load.
- Mass of unit load.
- Volume per unit.
- Type of Material.
- Geometrical shape and physical properties.
- Specific physical and chemical properties.

- Loads Sensitive.

3.2 Bulk Loads Classifications based on

- Lump size.
- Flowability.
- Abrasiveness.
- Bulk density.
- Miscellaneous characteristics.

4. METHODOLOGY

This will not be easy. Designing, deploying and operating effective industrial mobile systems [3] involves several requirements.

- **Passion:** Change, This need for change according to the application in industries. Different industries follow different material handling equipments (industrial mobile systems). In industry identify the affected and involved and gain support mobile systems.
- **Talent:** This process requires collaborative expertise. It is the process of evaluating a material flow [4], operational data, and identifying opportunities for improvement in industries.
- **Funding:** The process is about design engineering. Each step in this process requires labor, resources, and travel. In industries, need to put profitable funding. According to the material flow, need to design well equipped solar powered industrial mobile system.

5. FLOW CHAT FOR PROPOSED SYSTEM (SOLAR OR MAGNETIC POWERED INDUSTRIAL MOBILE SYSTEM)

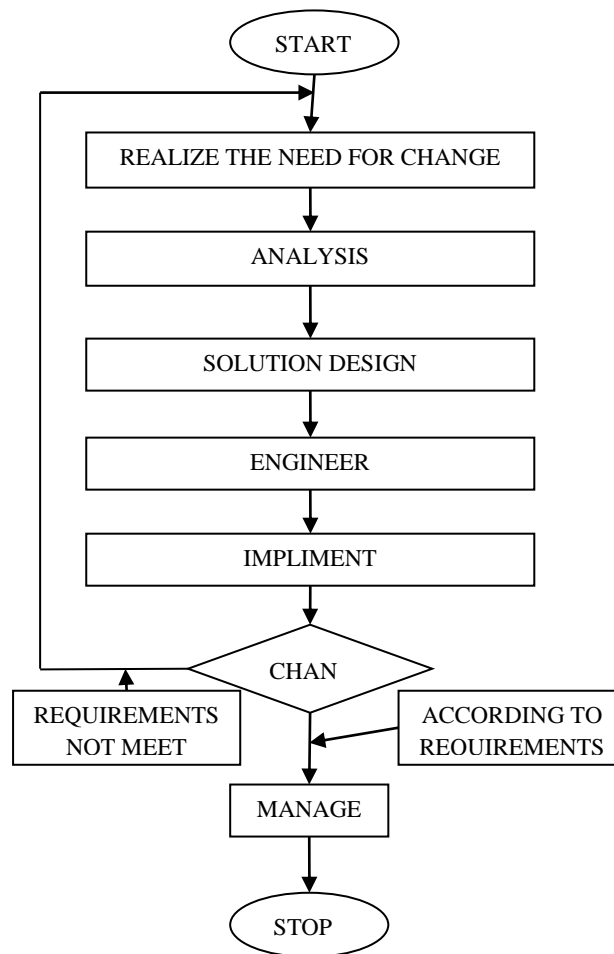


Figure 1. Flow Chart for proposed method

6. ALGORITHM OF PROPOSED SYSTEM

STEP 1: Start

STEP 2: That a solar powered industrial mobile system is worth considering according to the application.

STEP 3: This preliminary stage, often referred to as the feasibility study or concept study, is where the business case is generally defined; one or more reasonable approaches are also identified.

STEP 4: This design engineering phase involves the refinement of one best fit solution that has both technical and business merit.

STEP 5: Multiple disciplines perform the detailed engineering of the designed solution. This often involves manufacturing, software, mechanical, CAD, electrical controls, and systems engineering.

STEP 6: This step is the actual delivery, installation, test, and launch of the best-fit solution that was designed.

STEP 7: Since the first 5 steps were done correctly, now realizes positive change to their business and enjoys the return on their investment.

STEP 8: Being a good solar powered industrial mobile system means care and feeding as well as keeping things current (which requires a sort of design effort in it).

STEP 9: Stop.



Figure. 2 Bottom View

(Battery, two way



Figure. 3 Top View

(Solar Panel)

Figure 2, 3: Proposed system model views

8. CONCLUSION

In this paper, we have proposed about future trends in the development of industrial mobile systems. In particular, we have discussed the challenges involved in the construction of future advanced systems in industrial mobile systems. The challenges arising from the collaboration of several different disciplines (which is already an issue today), and those due to the aspect of distinguishing current from future industrial mobile systems. These are challenges to all involved disciplines.

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