

Stock Verification of Bulk Raw Materials in RMHP

Visakhapatnam Steel Plant is an integrated Shore based Steel Plant with 7.3 Mt installed capacity for steel making. For the process of Steel production, the following Bulk Raw Materials like Iron Ore, Lime stone, Dolomite, etc., and Semi-finished products such as Coke products, Sinter products and Pig Iron are procured and stored.

Sl. No	Department	Materials	Storage Yard
1	Raw materials handling plant (RMHP)	All Bulk Raw Materials (Ores and Coals)	Storage yards (RMHP) at Plant.
2	Imported bulk materials	Coking coals, Boiler coal, Lime stone, etc.,	Port (GPL/VPT)
3	CO&CCP	Coke products	Coke Storage Yards
4	Sinter Plant (SP)	Sinter Products	Base Mix Yard
5	Blast Furnace (BF)	Pig Iron	Pig Storage Yard
6	Mines	Bulk Raw Materials	JLM, MDM and GMM

These products are stacked in designated storage beds/ yards developed for the storage of the materials. These materials are stacked in the form of geometrical shapes like Triangle, Trapezium, Cone , etc., and are irregular in nature due to stacking / reclaiming of the materials during the process of production.

Quarterly, stock verification in the yards is done for the different materials by a group of professionals using Digital 3D laser scanner and measuring tapes, going around the stacks. These manual process is time consuming and error prone.

In the advent of Industry 4.0, a product may be explored which will fly through the yard and capture shapes of the stacks, creating 3D images and computation of volumes of the stacks.

The product may have the following features.

- ❖ The product may be a drone based fitted with latest Scanners to scan the material stacks and shall have the provision to store the data internally.
- ❖ The drone shall have provision to observe a stack and move on to next stack using some LiDar technology. The drone shall operate in semi automation mode.
- ❖ The drone shall move up and down and around the stack in 360 degrees to scan all the area of the stack material wise.
- ❖ It should able to move to next material bed in the yard and do the same process till entire yard is covered.
- ❖ The drone shall identify the obstacles and move without hindrance to the ongoing process in the yard.
- ❖ After successful capture of the data by press of a button the data should get transferred to computer/Server.

