

Design of a Multi-Purpose Agro Equipment for Seed Planting and Other Applications



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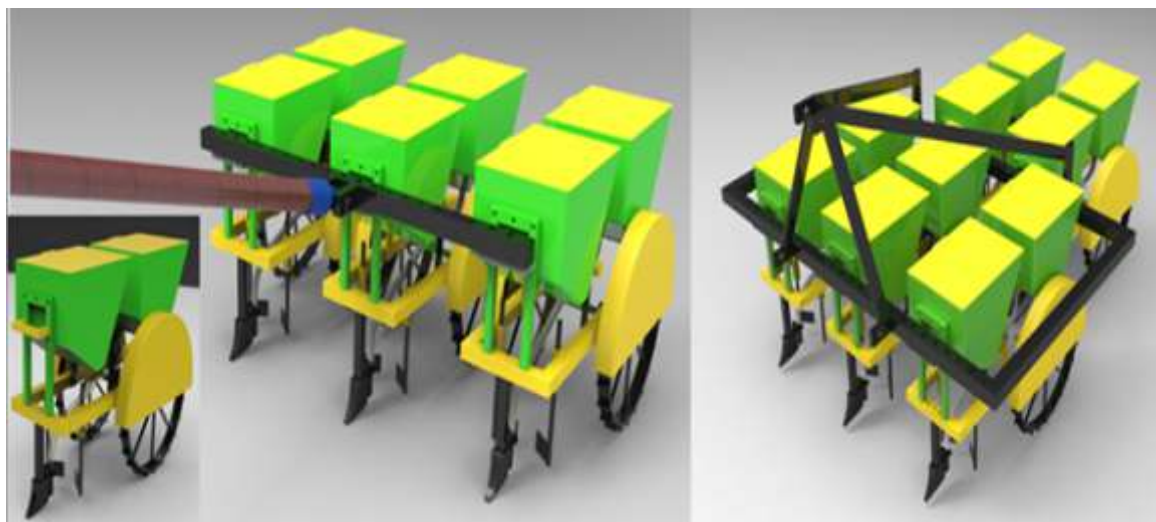
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Abstract:

India is an agriculture based country. Agriculture is demographically the broadest economic sector in India, having a significant role in the overall socio-economy fabric. With increasing population, demand for the food grains is more than the supply. In order to bring down the demand-supply gap, sowing equipment namely seed drill can help farmers in better sowing of seeds. Farmers normally complain about low yield growth from the sowing of seeds. When studied, it was directly linked to the method of sowing which included spacing between the seeds, distribution per unit area, seed size, germination percentage and depth of seed in the soil.

Design process started with a primary research by identifying the need for an agro product for sowing seeds. The need for multi-purpose usable agro product which can be used for many applications in single device was envisage. Data collection was carried out by adopting methodologies such as literature review, product study and market study. The secondary research was conducting by Ethnography study with the farmers, agriculturists and experts for deciding product parameters and user interface. The QFD was generating based on the user parameters and data analyses. The PDS was generated by analyzing the collected data and QFD. Concepts were generated with respect to the PDS and needs identified through the data collection. The final concept was selected by using weighted ranking method.

The proposed product is design for multiple functions; the name of the device is “Zero Till Fertilizer cum Seed drill”. A 1:1 working model has been made for validate the final concept and feedback was collected from the users. The farmers need for multi-purpose agro equipment obtaining functional and ergonomic requirement was met by the proposed product and the back obtained was positive and satisfied.



Seed drill device

Bullock attachment

Tractor attachment