
A low cost automated device for releasing a certain mass of small seeds or powder materials

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A simple automated device has been designed and constructed in order to release a certain mass of small seeds or powdered materials. The device uses a screwed axel rotating inside U shaped tube, which is fixed to the bottom of the container to push the material out of the container. This preliminary study indicates that the device releases small seeds or powder materials with an adjustable and constant rate with a higher accuracy. The weight of releasing seeds or powder materials could be adjusted to any pre determined value from 0 g to 5 kg (range of the load cell). As an example, it could release 50 g of chili powder in about 50 s with an accuracy of ± 1 g. The efficiency of the measuring mechanism could be increased by increasing the rotational speed of the screw and vice versa. The accuracy of the measuring mechanism could be increased by decreasing the pitch and depth of the screw. The space between the screw and U shaped tube is another key factor, which determines the efficiency and accuracy of the device. The constructed device (screw dimensions: pitch = 8 mm, depth = 2 mm) could be used for measuring any dry material with particle size less than 3 mm. This could be modified and used for many applications ranging from small-scale shops to large-scale industries. The accuracy and efficiency could be improved further. The main advantage is that the device could be easily manufactured locally at a low cost and it could be used in small industries which produce packets of dry seeds or powder materials.

Key words: Coaxially, depth, efficiency accuracy, pitch

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