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Reliable Smart Pet Feeding Machine Using Arduino Uno Starter Kit

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Reliable Smart Pet Feeding Machine Using Arduino Uno Starter Kit

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Abstract. Pet feeding can be done manually by pet owners, or automatically with the help of the pet feeders. The main concerns here are to solve the issue of unavailability of pet owners and the hygiene aspect in pet feeding. The developed automated system enables pet owners to feed their pets while they are away. The main objective of operating this research is to develop an automated pet feeding device focusing on in house pets by utilizing Arduino Uno as its Central Processing Unit (CPU) or microcontroller which function to control a weight sensor (load cells) and a servo motor. Smart Pet Feeding Machine is an automated pet feeding device designed to run based on weight mechanism. It will automatically dispense pet foods when minimum amount of pet food weight is triggered and will automatically stop dispensing when it reaches maximum amount of weight. Its architectural design includes a vertical storage compartment to store pet foods, a square opening at the bottom of storage compartment as opening for dispensing, a motorized dispenser and an aluminium bowl to place dispensed pet foods. The motion of dispenser is operated by a servo motor attached to the dispenser.

1. Introduction

Nowadays, owning pet at home is no longer a trend. Taking care and feeding pet is no longer a burdensome task since there are huge numbers of pet feeder in the market. However, there are not much pet feeding machines that serve meal for pet freshly. Contaminated food will cause health issues to pets. One of the illnesses is called foodborne. This disease exists due to bacteria carried in contaminated foods.

As an overview, an automated pet feeding machine consists of a single-entry feeding zone, a feeding bowl, a food storage container, a sensor, a memory storage and at least one processor [1]. The processor selected to be integrated with Smart Pet Feeding Machine is Arduino Uno microcontroller, which is programmed using Arduino Software. Arduino Uno Starter Kit is a low-cost robotic kit. As the name implies, it suits starter. One driving concern of this work is the affordability and accessibility of educational tools to students and schools that do not possess enough financial support [2]. This device operates using weight mechanism and therefore a weight sensor is integrated to the system. Load cells are embedded to the device to sense the weight of pet food remaining. There are few reasons and advantages of using strain gauge type load cells as the weight sensor. One of them is its simple mechanism. A sensor probe has a first end disposed within the interior space. The sensor probe also includes a second end opposite the first end outside the interior space. At least one load cell is