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DESIGN AND FABRICATION OF AUTOMATIC ANIMAL FEEDING SYSTEM FOR CATTLE BREEDS USING CONVEYOR TECHNIQUE

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Abstract: The objective function of this project is to design and build the automatic animal feed system for cattle breeds that would operate on a conveyor basis through the use of this system. It will provide schematics to be used for the wiring of the system, image and procedures for the construction of an aesthetically pleasing and useful outer-casting. In this project work an effort made to develop a labor/time saving automatically operated automatic feeder that will optimize feeding of birds. There exists many automated equipment's to feed birds in large scale poultries. But it is difficult or not possible to include large scale equipment's in small medium scale poultries

Index Terms **- Agro-residues, Briquette, Proximate Analysis, Densification, Scotch Yoke Mechanism.s**

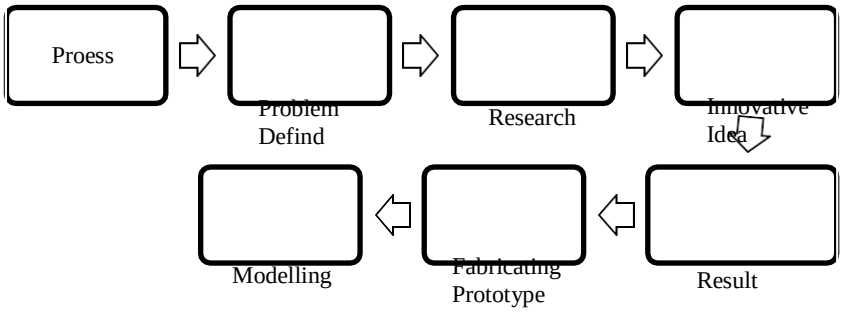
I. INTRODUCTION

Over the last 20 years, due largely to genetic selection but partially to improvements in nutrition, there has been a substantial decrease in the time it takes to grow a broiler to market weight. Much of this improvement is attributed to increased food intake. The invention of improved mechanical feeding system led to a dramatic reduction in stress due to the elimination of manual feed sorting and relocation of birds by weight, more efficient feeding, less disturbance by staff, the elimination of meal replacement due to better weight control monitoring and increased productivity due to less handling. All of these factors contribute to the realization of the birds' genetic capabilities. There is also increased efficiency for the producer as no time is required to correct uneven bird weights and staff will have more time to devote to animal husbandry. The term "contract Poultry" refers to any genetic stock of poultry (unimproved or improved) raised intensively, semi-intensively or extensively in relatively small numbers. Most of the 826 million people still suffering from malnutrition and approximately 1,200 million people living on less than one US$ per day are to be found in developing countries. Contract poultry represent an appropriate system for supplying the fast growing human population with high quality protein and providing additional income to resource-poor small farmers, especially women, a lthough requiring low levels of inputs (i.e. housings, cages, feeds, breeds, vaccines, drugs, equipment and time/attention). Contract poultry contributes significantly to food security and poverty alleviation. Moreover, Family poultry constitute an important component of the agricultural and household economy in the developing world, a contribution that goes beyond direct food production as well as job and income generation for small farmers.

II. OBJECTIVE

- ✓ The objective function of this project is to design and build the automatic animal feed system for cattle breeds that would operate on a conveyor basis through the use of this system, It will provide schematics to be used for the wiring of the system, images and procedures for the construction of an aesthetically pleasing and useful outer-casing, as well as the code developed that is necessary to ensure every component does its job. Constraints of the system would be that the actual hardware would need to be able to be confined to the end user's available area of use. Although this is different for everyone, for this specific project, the system will be held in a 2 ft x 2 ft x 1 ft environment.

III. WORK PLAN



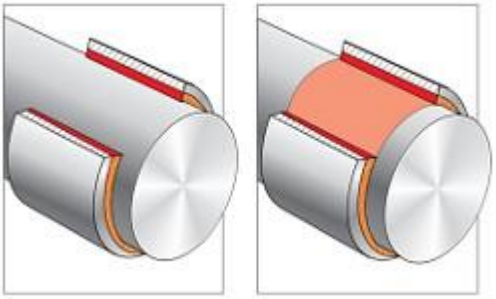
IV. HOPPER:

Hopper is widely used for solid material feeding purpose. We currently offer a range of capacities within the range to suit your specific application. All our our feed hoppers include an integrated belt feeder to ensure the efficient transition of material from the feed hopper to the next stage of material processing.

A hopper is a large, pyramidal shaped container used in industrial processes to hold particulate matter that has been collected from expelled air. Hoppers are usually installed in groups to allow for a greater collection quantity. They are employed in industrial processes that use air pollution control devices such as dust collectors, electrostatic precipitators, and baghouses/fabric filters. Most hoppers are made of steel.

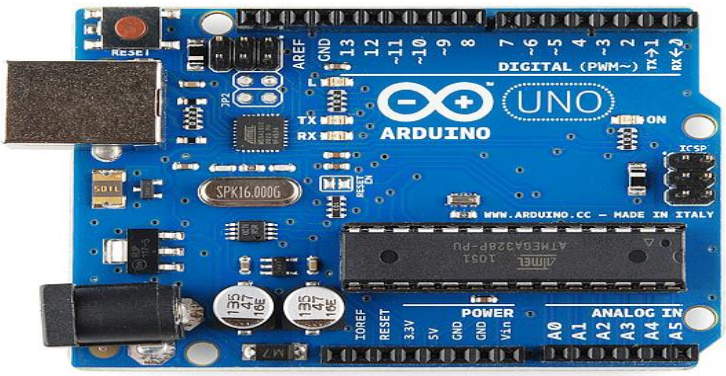
V.BEARING:

A bearing is a machine element that constrains relative motion to only the desired motion, and reduces friction between moving parts. The design of the bearing may, for example, provide for free linear movement of the moving part or for free rotation around a fixed axis; or, it may *prevent* a motion by controlling the vectors of normal forces that bear on the moving parts. Most bearings facilitate the desired motion by minimizing friction. Bearings are classified broadly according to the type of operation, the motions allowed, or to the directions of the loads (forces) applied to the parts.



VI.ARDINO:

Arduino is an open-source electronics platform based on easy-to-use hardware and software. Arduino boards are able to read inputs - light on a sensor, a finger on a button, or a Twitter message - and turn it into an output - activating a motor, turning on an LED, publishing something online. You can tell your board what to do by sending a set of instructions to the microcontroller on the board. To do so you use the Arduino programming language (based on Wiring), and the Arduino Software (IDE), based on Processing.



VII .BATTERY:

An electric battery is a collection of one or more electrochemical cells in which stored chemical energy is converted into electrical energy. The principles of operation haven't changed much since the time of Volta. Each cell consists of two half cells connected in series through an electrolytic solution. One half cell houses the Anode to which the positive ions migrate from the Electrolyte and the other houses the Cathode to which the negative ones drift. The two cells are may be connected via a semi permeable membranous structure allowing ions to flow but not the mixing of electrolytes as in the case of most primary cells or in the same solution as in secondary cells.

VIII.FACTORS DETERMINING THE CHOICE OF MATERIALS:

Properties

The material selected must posses the necessary properties for the proposed application. The various requirements to satisfied can be weight, surface finish, rigidity, ability to withstand environmental attack from chemicals, service life, reliability etc.

The following four types of principle properties of materials decisively affect their selection

Physical
Mechanical
From manufacturing point of view
Chemical

The various physical properties concerned are melting point, Thermal Conductivity, Specific heat, coefficient of thermal expansion, specific gravity, electrical Conductivity, Magnetic purposes etc.

The various Mechanical properties Concerned are strength in tensile, compressive shear, bending, torsional and buckling load, fatigue resistance, impact resistance, elastic limit, endurance limit, and modulus of elasticity, hardness, wear resistance and sliding properties.

Manufacturing Case

Sometimes the demand for lowest possible manufacturing cost or surface qualities obtainable by the application of suitable coating substances may demand the use of special materials.

Quality Required

This generally affects the manufacturing process and ultimately the material. For example, it would never be desirable to go for casting of a less number of components which can be fabricated much more economically by welding or hand forging the steel.

Availability of Material

Some materials may be scarce or in short supply. It then becomes obligatory for the designer to use some other material which though may not be a perfect substitute for the material designed.

Space Consideration

Sometimes high strength materials have to be selected because the forces involved are high and the space limitations are there..

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