➢ **Organization: OLAM International Ltd.**

Olam International is a leading agri-business in the world, operating from seed to shelf in 70 countries, supplying food and industrial raw materials to over 23,000 customers worldwide. Olam is one of the world's largest suppliers of cocoa beans and products, coffee, cotton and rice

➢ **Project Title: Portable Equipment for checking Raw Cashew Nut Quality**

To design a Portable Raw Cashew Nut Quality Checking Equipment which can check quality with less Human Expertise.

➢ **Problem Background:**

Checking the quality of Raw Cashew Nut needs special expertise. Currently there is a manual process being used worldwide to check the raw material quality. As the Raw material is available major in farms and warehouses, one quality expert needs to physically travel everywhere to check the quality.

➢ **Proposed Solution:**

To reduce the manual intervention in the quality checking process, we need to make an equipment which will automatically check the quality. A mechanical equipment needs to cut the raw cashew nut (around 200 total nuts to be cut into two halfs) and check the quality of cashew kernel inside through image processing or any other suitable technology.

Steps Required:-

1) Select random sample using proper manual sampling methodology from the lot being tested

2) 1 kg needs to be selected from the sample collected for the machine to do cutting test

3) After cutting each raw cashew nut (RCN), the kernel inside has to be categorized into 5 types
   i) Good Kernel ii) Spotted   iii) Immature iv) Browns   v) Voids. The rest be categorized as Shells.

4) Use mathematical formula as given below

KOR = (Good Kernel in gms + Spotted Kernel in gms * 0.5 + Immature Kernels in gms * 0.5) * 0.176

SHOT = (Good Kernel in gms + Spotted Kernel in gms + Immature Kernels in gms) * 0.176

5) The KOR and SHOT values to be displayed in the screen of the machine

Annexed here is the manual procedure of checking the quality of the Cashew through manual method. Please go through it in detail as it gives the basis for differentiating the kernels based on colour and quality. The idea is to use an embed the procedure of manual solution into a mechanical solution without any human intervention for checking quality.

➢ **Result Needed**: Equipment has to be a mix of Mechanical and Electronics and needs to be portable in nature. It should accurately give the KOR and SHOT of the sample being tested`