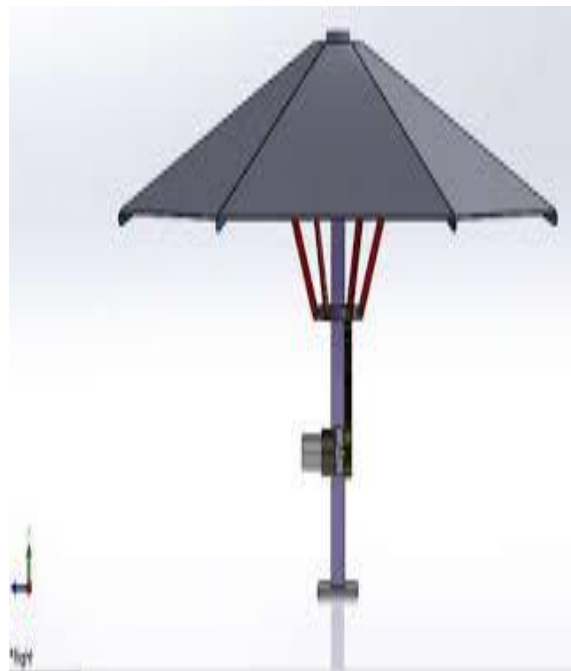


RAIN-SENSING SMART UMBRELLA

Agriculture is the most important sector of the Indian economy. India is the largest producer of Areca **nut**. Karnataka contributes **62.69%** to areca nut production. Climate change adversely affects the Indian agriculture sector. Due to **unexpected rain farmers are not able to protect their areca nut**, which may lead to poor grading of areca nut and which will **reduce their profit**.

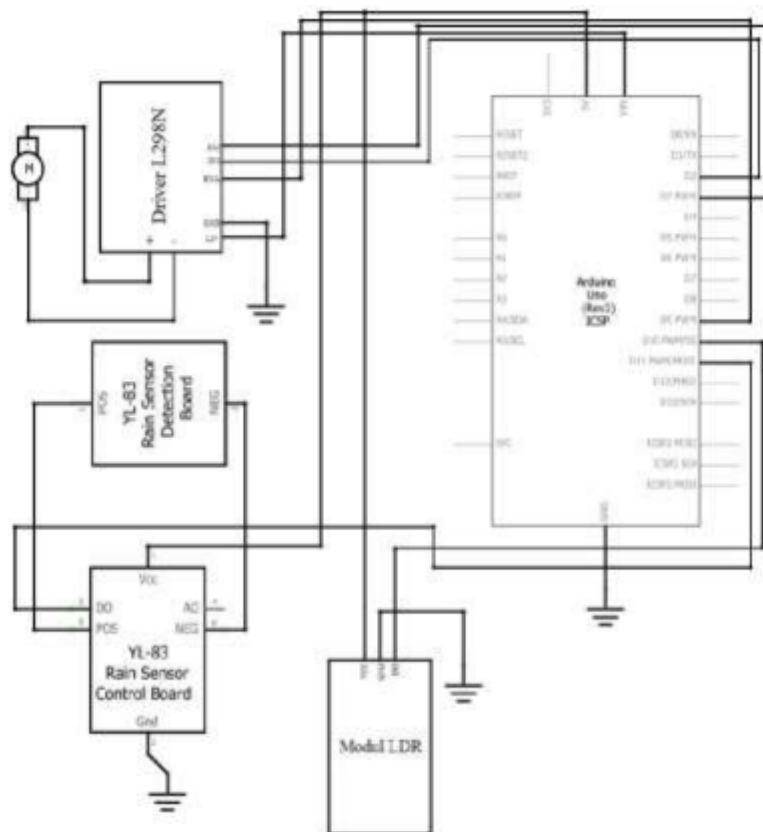
WORKING:



The basic idea is to develop a smart umbrella that is intelligent as well as automated. A rechargeable battery is used as the power supply which can be plugged into a powered charging point. The working of the model is dependent on the intensity of rain. The water sensor senses the intensity, as the rain intensity increases, it sends a signal to the motor driver to start the motor which ultimately opens up the umbrella.

The designed model will not be required any human intervention for controlling the overall system. Whenever the rain falls, the rain sensor detects the intensity of the rainfall and sends the information to the microcontroller. The information collected by the rain sensor is processed by the microcontroller and sends processed information to the servo motor to take the desired action.

CIRCUIT:

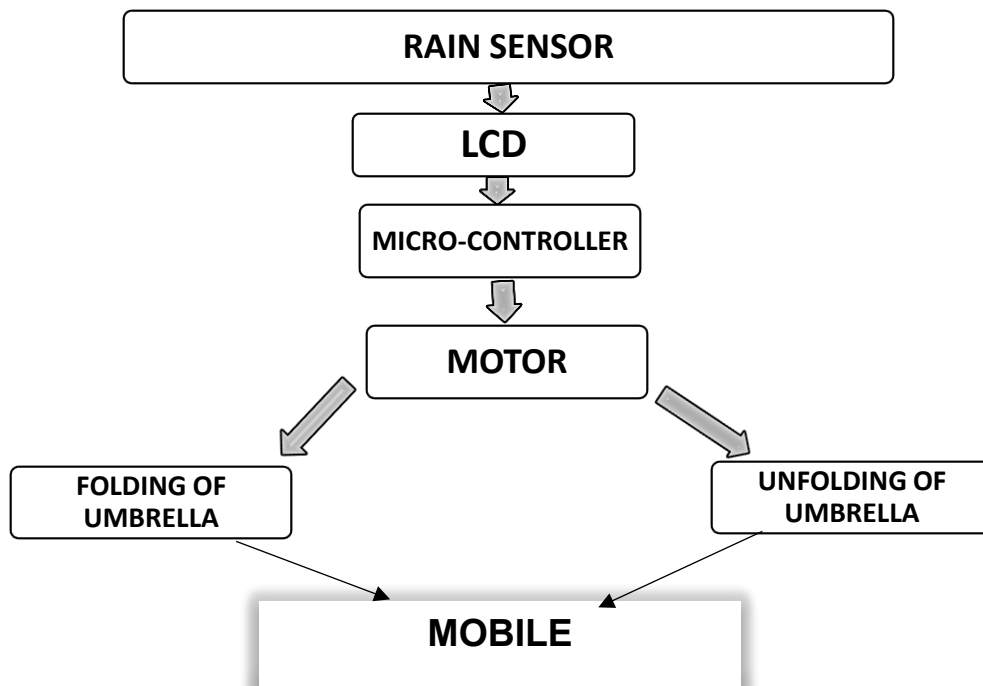


The rain sensor consists of digital and analog output pins from where the intensity of the rain is calculated. The information which is sent to the microcontroller is responsible for controlling which leads to the folding and unfolding of the umbrella based on the intensity of the rainfall. The LCD will show the intensity of the rainfall.

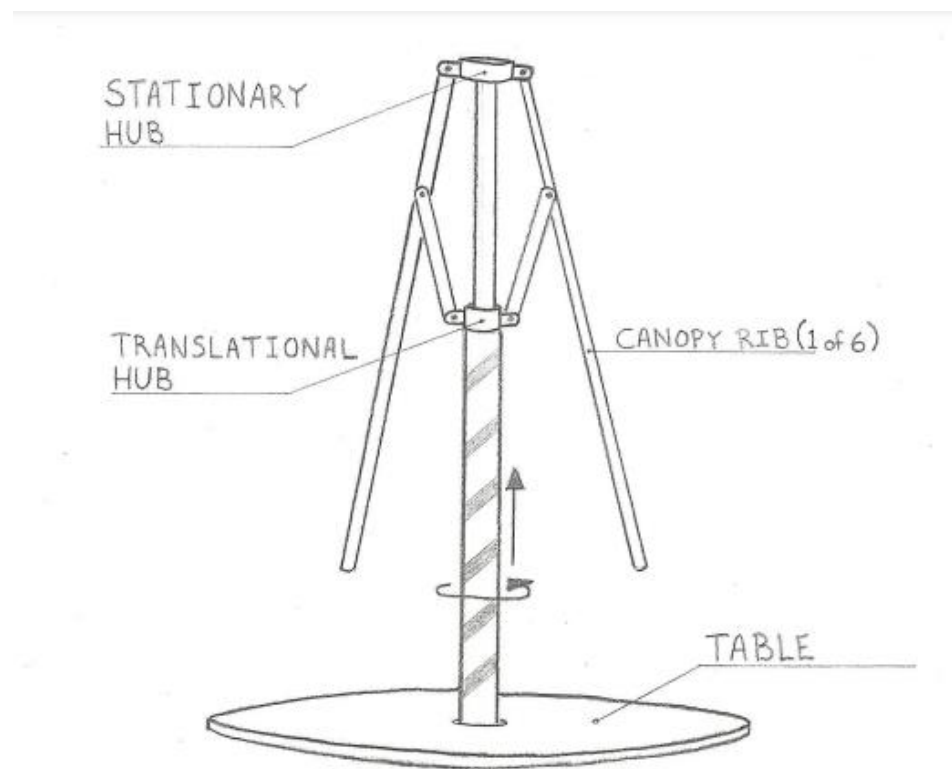
IoT IN AGRICULTURE:

We can use IoT and create a portal between a mobile OS and the rain-sensing umbrella. Through this we can get notification of the current status and its operation.

BLOCK DIAGRAM:



MECHANICAL STRUCTURE:



ADVANTAGES:

- ☐ The automated rain-sensing umbrella can help farmers in protecting their areca nuts and helps them to get the expected profit.
- ☐ No intervention of humans is required.
- ☐ Makes the work much easier.
- ☐ This is easy to operate and use.
- ☐ Since there is the use of IoT it can be controlled remotely.
- ☐ We can monitor climate changes.