SOLUTION ARCHITECTURE FOR SMART FARMING

INTRODUCTION :

The main goal of smart farming is to optimize the harvesting land per unit by using modern methods to achieve best in terms of quality,quantity and financial return.the term smart farming is also known as precious farming which uses a wide range of technologies,gps services,sensors and etc.the working of smart devices in farming allows farmers to apply amout of many resource at right time and right place in right time.this type of farming need less cost and efficient farming

SOLUTIONS:

**Livestock tracking and Geo fencing**

Playing an important role in any farm’s sustainability, domestic animals are raised as commodities and produce. With 70% thefts in livestock reported every year, real time geofencing is a boon for farmers.

**Smart logistics and warehousing**

Farms are often huge productions. Harvest times results in yield that is a logistics nightmare. With smart agriculture solutions in place, storage and processing in warehouses can be done smoothly.

**Smart pest management**

Pesticides help in preventing infestations. But the wrong quantity can result in destroyed crops. In order to avoid such situations, smart pest management provides detailed analytics which predict swarm patterns and alerts on the health of the crops.

**Smart Greenhouses**

While growing delicate and exotic flowers or herbs, climate control plays a big hand. Plants grow and thrive in smart green houses with an increase in quality and yield. As demand increases, smart greenhouses become an important tool to meet the output required. Green houses have been industrialized in size and capacity to grow fruits and vegetables.

**Climate monitoring and forecasting**

Nature is a fickle friend of the farmers. Climate change, weather forecasts are now key features in in precision farming. They alert the farmer of the impending changes and help ensure preventive measures. With sensors in place to predict and analyze the weather, crops can be saves from being destroyed.

**Predictive analytics for crops and livestock**

IoT in smart farming is not restricted to a particular section. Smart farming sensors can be placed right in the ground. There, it shall read and analysis the derived data and help improve farming practices. Primarily, the leaf to soil ratio and soil humidity help increase quantity and quality of the produce. Wearables for cattle are the best bet against poaching and cattle napping.

**Remote crop and soil monitoring**

With the help of smart farming system, moisture and fertility of soil along with crops growth rate can be monitored remotely through real time animation and graphics via a smartphones. This helps the farmer make environmental variables and informed decisions for the farm.

**Remote equipment monitoring**

Tractors, pickups and harvesting machines and equipment are IoT enables with sensors. Installing, provisioning and managing IoT endpoints, securely and reliably connecting the same. Ingesting, managing, curating and analyzing IoT data can be done remotely.

**Sensor based field and resource mapping**

With the help of IoT smart farming systems, one can use sensors to map and keep track of the entire farm. This also includes the stats of the human resources, tools and institutional assets.

**Stats on livestock feeding and produce**

Feeding patterns of the cattle often predict if there is any illness round the bend. Quality produce of milk and protein depends on the amount and quality consumption of the cattle.

**Drone monitoring**

Drones are the latest helpers in grabbing real time data. Hovering over the entire property, they analyze the growth rate and the vegetation index of the crops. Multispectral, thermal sensors or hyper-spectral, these IoT enabled Drones grab data and calculate crop health via heat signatures.

**Automated Sprinkler System**

The weather, humidity in the air, analysis of the soil goes a long way in determining if there is a need for water dispersion. Precise and controlled water dispersion through IoT enabled water meter sensors helps in ensuring that there is no risk of damaging crops due to over watering.