# AI-IoT Smart Agriculture System Proposal

## Objective

To design a smart agriculture system that integrates Internet of Things (IoT) sensors and Artificial Intelligence (AI) to monitor environmental conditions and predict crop yields, thereby enhancing productivity and sustainability in farming.

## System Components

The system consists of the following components:

* - Soil moisture sensors
* - Temperature sensors
* - Humidity sensors
* - Light intensity sensors
* - pH sensors
* - Microcontroller (e.g., Arduino or Raspberry Pi) for local data collection
* - AI-powered analytics platform for yield prediction

## AI Model

A regression-based machine learning model (e.g., XGBoost or Random Forest) will be trained on historical and real-time sensor data to predict crop yields. The model considers environmental variables and historical yield records to provide actionable insights.

## Data Flow Diagram

Below is the conceptual data flow:

[Insert Diagram Here: Sensor Data → Microcontroller → Cloud/Edge Device → AI Model → Farmer Dashboard]

## Expected Outcomes

- Improved resource management (e.g., water usage)  
- Increased crop productivity through timely decisions  
- Early detection of adverse conditions  
- Data-driven support for farmers