**AgriDebug Proposal**

AgriDebug is an AI powered diagnostic and farm enterprise tracking system designed to enhance reliability, transparency, and productivity among smallholder farmers. In response to the growing reliance on software-driven technologies like IoT sensors, automated irrigation, and drone-based monitoring, AgriDebug offers real-time anomaly detection, intuitive bug reporting, and intelligent communication between farmers and engineers. The tool monitors logs and sensor data, flags issues such as irrigation misfires or sensor failures, and auto generates solutions in both technical and farmer-friendly language. Uniquely, it includes a voice-enabled chatbot that supports local dialects to convert spoken issue descriptions into structured reports, bridging the gap between tech and non-tech users.

Building on its diagnostic capabilities, AgriDebug also captures enterprise-level output and financial data: tracking yields, market sales, input costs and net profits across various farm enterprises. With AI-driven analytics, farmers can forecast income, receive personalized insights, and generate sustainability reports for compliance and certification. By connecting the field with the cloud and translating complex systems into actionable, accessible insights, AgriDebug empowers farmers to make informed decisions and strengthens the future of agri-tech.

The AgriDebug workflow begins with primary data collection from IoT sensors, drones, and mobile apps. It captures data on soil conditions, crop health, and equipment performance. Farmers can also report issues using voice or text in local dialects. AI analyzes the captured data and autogenerate bug reports with suggested fixes, translations and visual evidence. These reports are integrated into DevOps platforms like GitHub for engineers to act on. Simultaneously, AgriDebug tracks farm outputs such as yields, production and logs income and expenses per enterprise. AI-driven analytics forecast productivity and profitability, offering personalized recommendations to optimize operations. AgriDebug will transform the farming landscape of smallholder farmers constrained by poor record keeping, planning, language barrier and monitoring systems, improving food and nutrition security.