NOMINEE'S NAME: Krishna Kumar
Email: krishna@cropin.com
NOMINEE'S PHONE/WHATSAPP: +91 99860 79552
NOMINEE'S LINKEDIN PROFILE (LINK): https://www.linkedin.com/in/krishna-kumar-cropin/
PROJECT NAME: Cropin akṣara
PROJECT SNAPSHOT: Industry's first Micro Language Model (μ-LM) for Climate Smart Agriculture, uplifting the lives of millions of underserved farmers in the global south

PROJECT DESCRIPTION:

The climate crisis is putting a massive strain on smallholder farmers, some of the most vulnerable populations on the planet. Research by Forest and Farm Facility and International Institute for Environment and Development (IIED) reveals a shocking statistic: smallholder farmers are spending a staggering $368 billion of their own income every year, roughly 20-40% of their annual earnings, just to adapt to climate change.

This financial burden isn't just a personal struggle. It has significant implications for global food security. Despite managing only 12% of all agricultural land, smallholder farmers play a crucial role in feeding the world, especially vulnerable populations in the developing world. They produce a remarkable 35% of the world's food. Even a minor climate impact on their operational efficiency can have a cascading effect, worsening hunger, disrupting food security, and negatively impacting the lives of billions.

Recognizing this deep-rooted challenge, Cropin took a bold step. At a time when AI is making waves in addressing various global issues, Cropin decided to leverage its AI expertise for a truly responsible development – one of the most impactful AI solutions the world has ever seen. This resulted in the birth of akṣara, a Micro Language Model (μ-LM) specifically designed for climate-smart agriculture. Akṣara is targeted at empowering underserved farmers in the Global South, offering them the tools they need to navigate the climate crisis and continue feeding the world.

'*akṣara*' is the sector's first purpose-built open-source Micro Language Model (μ-LM) for climate-smart agriculture. *Akṣara*' is designed to address the problems faced by the underserved farming communities in the Global South by removing barriers to knowledge, and empowering anyone in the agriculture ecosystem to build frugal and scalable AI solutions for the sector. With the goal of democratizing access to digital technologies and modernizing agriculture for the 21st century, Cropin aims to empower agricultural stakeholders including farmers, developers, and researchers to tackle global challenges like food security, climate change, resource conservation - water and soil, regenerative agriculture practices amongst others by providing access to contextual, factual and actionable information.

Farmers in this region are increasingly vulnerable to changing weather conditions. Climate change is disrupting conventional agricultural practices, making existing knowledge impractical in the era of global warming. Factors like irregular or extreme rainfall, unpredictable heatwaves, and increased pest and disease attacks affect farmers' practices and reduce agricultural yield, productivity, and profitability. Cropin aims to bridge this gap with *akṣara* by harnessing the power of GenAI to provide insights into modern farming practices, accurate information, and farm advisories. For example, it can suggest which inputs to use for crops like rice or maize

under specific agro-climatic conditions or thousands of climate smart agri advisories and other topics. *The first version of akṣara'* covers nine crops *viz.* paddy, wheat, maize, sorghum, barley, cotton, sugarcane, soybean, and millets for 5 countries in the Indian subcontinent. These food crops collectively account for a substantial portion of the world's food requirements and are the staple food for the population in the global south.

akṣara also promotes the use of AI for sustainable agricultural practices (practices involving biological controls, soil conservation, water conservation, companion planting, and preserving beneficial plants and insects) and ensures the equitable distribution of benefits across farming communities in the Global South.

Besides providing climate-smart agriculture (CSA) advisories to farmers, Cropin has decided to open-source the akṣara platform. This initiative aims to empower agronomists, agri-scientists, field staff, and extension workers to create unique solutions tailored for agri-food systems. Why is this critical? AI has the potential to revolutionize agriculture, but challenges such as lack of access to large-scale structured data, expertise, and storage/compute infrastructure limit its adoption. Open-source projects like akṣara are essential for broadening AI use and accelerating innovation.

With akṣara, Cropin reaffirms its leadership in AI for food systems. The company began pioneering AI innovations in agriculture over more than half a decade ago when AI applications in farming were barely imagined. Cropin believes that transforming global food systems requires equipping industry think tanks and researchers with the best decision-making tools and information, which can then be disseminated at the grassroots level. This project is unique and promises to deliver unimaginable outcomes and positive impacts on global communities in the long run. By making akṣara open-source, Cropin is setting a new standard in the industry, driving forward the next wave of agricultural innovation and reinforcing its commitment to creating a sustainable and resilient global food system.

According to the United Nations' State of Food Security and Nutrition in the World report, between 691 and 783 million people faced hunger in 2022, an increase of 122 million compared to 2019. The majority of this increase was in the Global South. While many socio-economic factors contribute to global hunger, increasing agricultural yield and improving the economic status of rural communities dependent on agriculture are critical steps in enhancing food security. Climate change, however, poses a significant hindrance to achieving these goals. This is what Cropin aims to address through akṣara.

CATEGORY: Boldest AgriTech

PROJECT URL: https://www.cropin.com/blogs/introducing-aksara-a-digital-agronomist

FEATURED IMAGE:
https://drive.google.com/file/d/1P16AjFEct-wbQ2xLmJ7czCd92h7md2lc/view?usp=sharing

COMPANY/PROJECT LOGO:
https://drive.google.com/file/d/1WTLcAN8FfSy0AJpavXbTJikfiW1ERR8g/view?usp=sharing