

SagarMitra: Empowering Coastal Fisheries with AI

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Abstract:

For years, coastal fishing communities have faced two big challenges—rough, unpredictable seas, and middlemen who control prices, usually to the fishermen’s disadvantage. SagarMitra steps in to change that. It’s a web tool designed to give small-scale fishermen the info they need, right when they need it. With SagarMitra, fishermen get real-time sea weather updates and a seven-day forecast, all powered by the Open Weather API. That means they can plan their trips with a lot more confidence and stay safer out there. After they bring in their catch, SagarMitra shifts gears. It uses deep learning—specifically for smart input as image to identify fish species straight from a photo. No more guessing or relying on someone else’s word about what they’ve caught. But it doesn’t stop there. The system taps into an LSTM network trained on years of market data and seasonal trends to give price estimates that make sense—real numbers fishermen can use when they sit down to negotiate. It even helps them find the best markets nearby, weighing both the distance and Google ratings, and lays it all out on an interactive map that’s easy to use. Piece by piece, SagarMitra is closing the information gap that’s held fishing communities back. It helps them plan better, sell smarter, and build more reliable incomes along India’s coast.

Keywords:

Fish Species Classification, Transfer Learning, EfficientNet-B0, LSTM Price Prediction, Marine Decision Support System.