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(71)**Name of Applicant :**
1)KIET Group of Institutions
Address of Applicant :Delhi-NCR, Meerut Rd Ghaziabad Uttar Pradesh India 201206 Ghaziabad ---------- ----------
Name of Applicant : NA
Address of Applicant : NA
(72)**Name of Inventor :**
1)Anubhav Kumar
Address of Applicant :Computer Science Department, KIET Group of Institutions, Delhi-NCR, Meerut Rd Ghaziabad Uttar Pradesh India 201206 Ghaziabad ---------- ----------
2)Ritik Sharma
Address of Applicant :Computer Science Department, KIET Group of Institutions, Delhi-NCR, Meerut Rd Ghaziabad Uttar Pradesh India 201206 Ghaziabad ---------- ----------
3)Adarsh Choudhary
Address of Applicant :Computer Science Department, KIET Group of Institutions, Delhi-NCR, Meerut Rd Ghaziabad Uttar Pradesh India 201206 Ghaziabad ---------- ----------
4)Prajjwal Dwivedi
Address of Applicant :Computer Science Department, KIET Group of Institutions, Delhi-NCR, Meerut Rd Ghaziabad Uttar Pradesh India 201206 Ghaziabad ---------- ----------
5)Anurag Mishra
Address of Applicant :Computer Science Department, KIET Group of Institutions, Delhi-NCR, Meerut Rd Ghaziabad Uttar Pradesh India 201206 Ghaziabad ---------- ----------

(57) Abstract :
The web-based flood probability prediction system combines machine learning and GIS to provide real-time flood risk predictions. The system utilizes the XGBoost algorithm with hyperparameter tuning and cross-validation to ensure accuracy. Users access the platform through a web browser to select specific locations on an interactive map and receive flood probability data alongside historical trends and risk levels. The system supports applications in urban planning, disaster management, and insurance risk assessments, enhancing decision-making and resource allocation. Its integration of real-time environmental data and a scalable, user-friendly interface make it a valuable tool for minimizing the impact of flooding on lives and property. Designed for governments, NGOs, urban planners, and individuals, the invention empowers proactive flood preparedness and mitigation efforts globally.

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