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(57) Abstract :
ABSTRACT The present disclosure introduces an integrated IoT-ML weather and rain monitoring and management system 100 which offers efficient weather forecasting, with data-driven predictions. The system comprises of IoT Core 102, policies 104, certificates 106, private key 108, IoT MQTT protocol 110, a Raspberry Pi4 112 for data collection from atmospheric pressure sensor 114, light sensor 116, and temperature and humidity sensor 118. Data is transmitted through IoT MQTT protocol 110 to AWS Lambda 122, where a machine learning model 136 deployed in SageMaker 126 generates weather predictions. Python Script manages data collection, processing, and transmission. The system leverages Amazon S3 124 for data storage, SageMaker endpoints 128 for model interaction, and Amazon CloudWatch 132 for system monitoring. Real-time results are displayed on LCD screen 120 and web interface 134. Security is ensured via certificates 106 and a private key 108 through Amazon Identity and Security Manager 130. REFERENCE FIG 1

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