

A study on effect of weather conditions on cellular signal strength

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Cellphone density is growing at a very fast pace all over the globe. The high phone density among developing nations also poses it as a societal tool. India has a cellphone density of nearly billion and its fast growing too. In this study we are analyzing the effects of weather parameters on cellular signal strength, Rainfall and Temperature are considered in this study. Changing rainfall patterns are causing a heavy toll on India. We study the effects of rainfall and atmospheric temperature over a region on the cellular signal strength quality at the user end. RSSI (Received Signal Strength Indicator) is a measurement of the power present in a received radio signal. Rainfall can cause natural interference over transmitting signals (radio waves) in microwave links. We use SignalStrength Android Application Programming Interface Keys popularly known as APIs to get real-time RSSI readings from smartphones. Rainfall intensity measurements are made by rain gauges and temperature measurements are made by weather station. It has been concluded from the analysis that there is an effect of weather parameters on cellular signal strength measured at the user end. This study raises the potential of using Signal Strength measurements as high-resolution weather analysis over a region. Growing concerns of climatic change can be addressed by improved weather analysis and prediction, this study can be the first step towards weather analysis using cellular signal strength measurement.

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