Paris Session 2022

Example of method to identify fault location and improving accuracy of residual tensile strength

B2_PS2_Q2.6

What type of sensors was used for fault location system purpose? How can be used a finer division when determining the evaluated strength? How can be used AI for the determination of melt depth based on drone images?

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Background

Some conductors for overhead transmission lines passing through various environments are sometimes melted by fault arc and so on.

Crane

Birds

Snow/Ice
(Sleet jump, galloping)

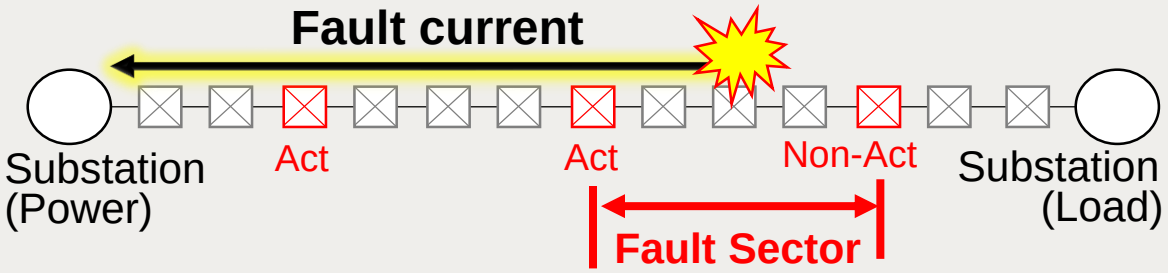
Lightning

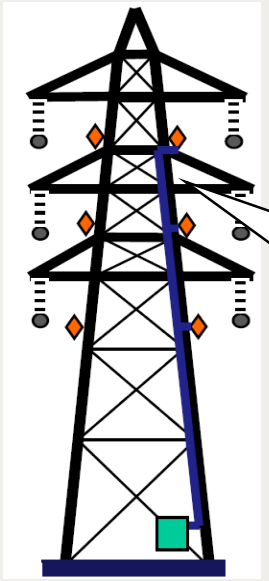
Melted conductor

Damaged conductor may break if not repaired.
Therefore it is necessary to find damaged points and repair them.

Example of method to identify fault location

Fault Sector (FS) System



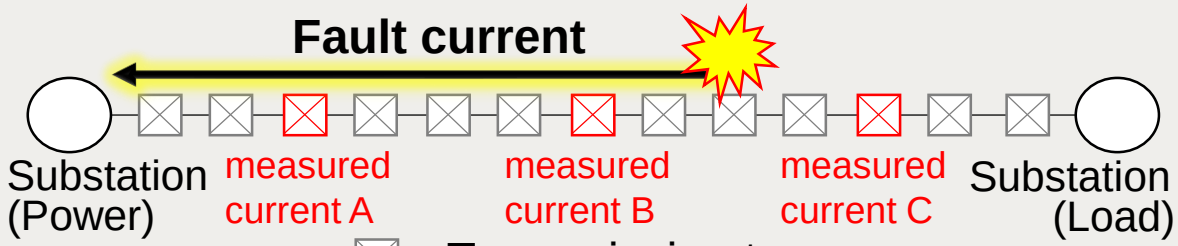


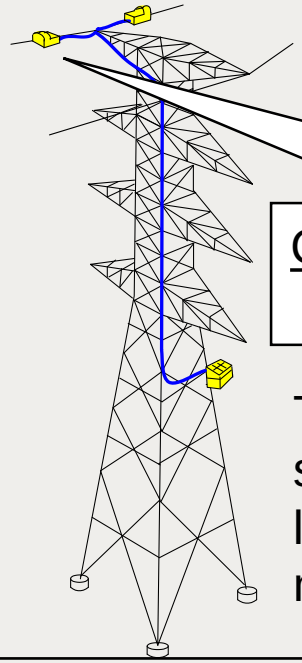
:Transmission tower

:Transmission tower (FS system installation)

Electromagnetic sensor
The sensor can detect fault current

Fault Locator (FL) System





:Transmission tower

:Transmission tower (FL system installation)

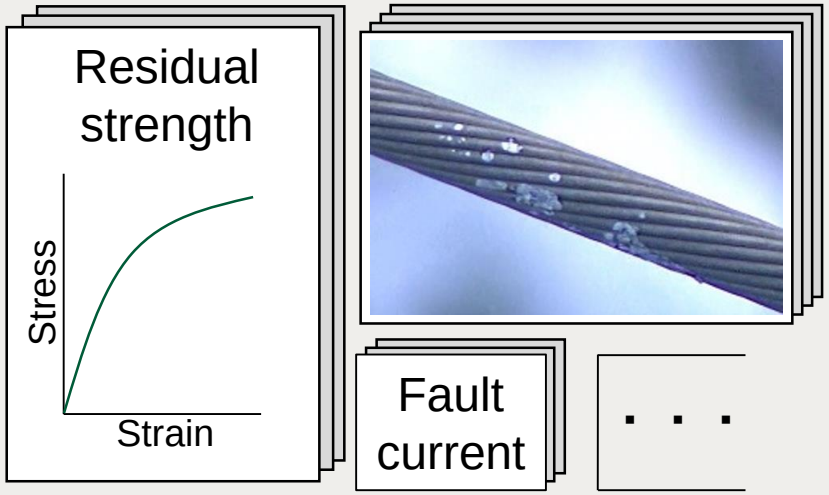
Current Transformer
Measure ground wire current

The fault current in each tower is simulated in advance, and the fault location is estimated from the actual measured current A-C.

Possibility of Improving accuracy of residual tensile strength

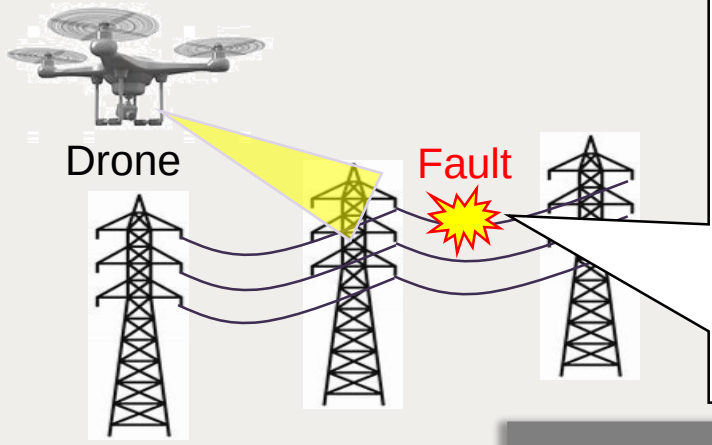
Training AI

Training data



AI technology

Image of residual strength evaluation using AI technology



Take a photo and evaluate of melted conductor

AI technology

Residual strength = XX kN

AI technology evaluates residual strength finely and automatically in real time