Communications-based train control

CBTC

**Introduction**

**CBTC** is a system used in communications between trains and track equipment to get a live information about the train such as location and speed.

IEEE defines CBTC as a continuous automatic train control system utilizing:

• High-resolution train location determination, independent of track circuits

• Continuous, high-capacity, two-way train-to-trackside data communications

• Train borne and trackside processors capable of performing essential functions

**System architecture**

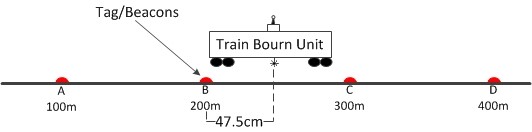
The system is divided to three sections

**1- tags or beacons:**

Tags or beacons are installed along the track, they define the current location of the train. A Tachometer installed on the axles ~~count~~ measures how far the train is from the tags.

**2- Train unit:**

The train unit will receive the ID of tag and the distance between the train and the tag through the tachometer

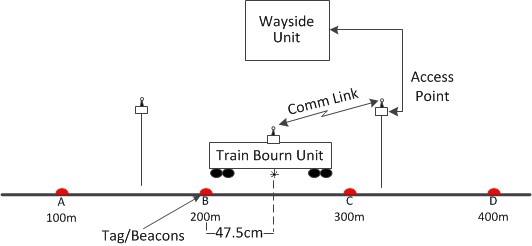


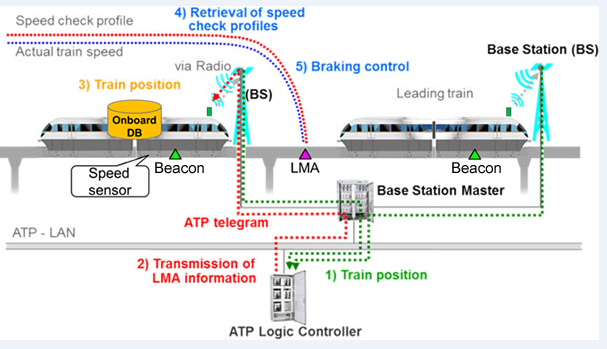
**3- Wayside unit:**

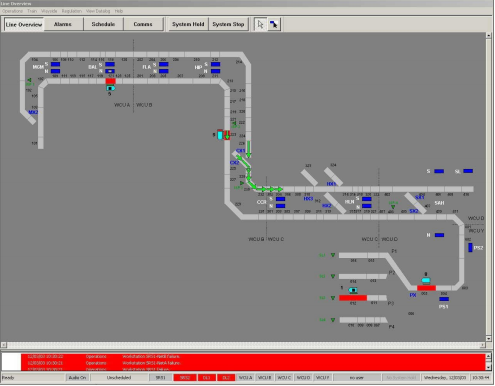
After the train unit ~~knows~~ detects the current location, it sends the information to an access point and then to wayside unit.

Every access point has a range, once the train will ~~be~~ is out of the predetermined range, it will disconnect from the access point and connect with the ~~new~~ next ~~other~~ access point

The way side units are connected together through a network







References :

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