SMART SOLUTION FOR RAILWAYS SOLUTION ARCHITECTURE

DOMAIN :INTERNET OF THINGS

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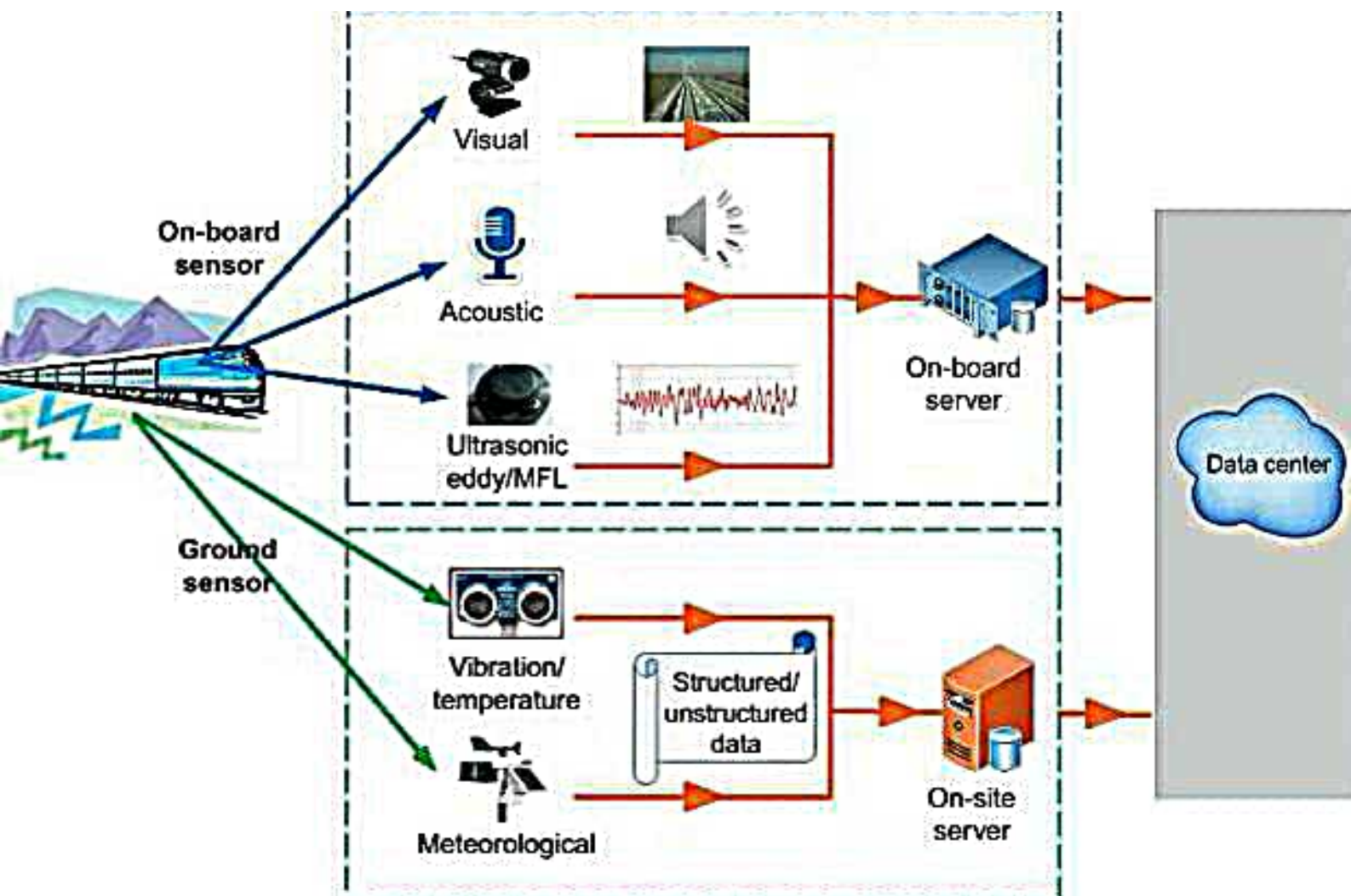
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Abstract:

Architecture based on the various sensor system and

various elactronics system which is used to improve smart solution for railways .They are system used in smar solution for railways

1.visual

2.on board sensor

3.Ground sensor etc

On-board sensor

Visual

Acoustic

Ultrasonic eddy/MFL

On-board server

Ground sensor

Vibration/ temperature

Meteorological

Structured/ unstructured data

On-site server

Data center

⬜ Open Wi-Fi would be made available at 400 railway stations across the country

⬜ Digitised mapping of Rail land will be initiated to counter encroachment.

⬜ An integrated customer portal is being put in place for customers to access various railway services at one place

⬜ An 'Operation five minutes' will be introduced for issuing unreserved tickets. Under this facility, ticketless passengers can get regular tickets within five minutes of entering station. Unreserved ticket purchase is also expected to be made simpler through smart phones and debit cards

⬜ SMS alert service would be introduced to inform passengers about train arrival and departure

⬜ Mobile charging facility would be made available in all trains and stations. The facility will be extended to general coaches as well.

⬜ Railway helpline number 138 will become operational 24×7. Toll free number 182 will be created for security related complaints.

⬜ CCTVs to be introduced in select trains and suburban trains for women safety

⬜ E-catering will be launched for select meals from an array of choices, ordering food through IRCTC websites at the time of booking tickets.

This scheme has great potential for the The Internet of Things (IoT). The Internet of Things (IoT) has been defined by International Telecommunication Union in Recommendation ITU-T Y.2060 (06/2012) as a global infrastructure for the information society, enabling advanced services by interconnecting (physical and virtual) things based on existing and evolving interoperable information and communication technologies. The IoT is a "network" of 'things' that can broadcast data and connect to the internet or to a network. Objects, animals or people are given unique identifiers and the capability to transfer data over a network. All this is achieved without human intervention. The convergence of wireless technologies, micro-electromechanical systems (MEMS) and the Internet leads to IoT.

A "thing" can join in IoT, only when it is tagged as 'smart'. For becoming 'smart", common things or objects, a few action are needed;

1. a unique identity is assigned to the object

2. it has the ability to communicate or to transmit data wirelessly

3. sensing devices must be inbuilt in the object

4. it should have capacity to be remote controlledm

Things' can refer to a range of devices such as heart monitoring implants,

Transponders on farm animals or trees, built-in sensors in automobiles, etc. Currently,

In the retail market, there are products that utilize this technology like smart

Thermostat systems or smart washing machines and dryers, with many more on the

Way.

Minuscule electronics are fitted to a device so each of these things is able to exchange

Messages with other things and networks. The broader aim is seamless

Communication, no matter who built the thing or device. In fact, engineering and PhD

Students in India will soon have the Internet of Things on their curriculum if the

Centre's draft policy is put into practice. IoT is going to be crucial to meet the

Challenges of the future.

The applications of IoT range from building and home automation and monitoring,

Environmental monitoring, infrastructure management, industry, energy

Management, transport systems, urban area management, medical and healthcare

Systems, etc. New ideas and new companies are creating innovative products and

Protocols while established companies like Cisco, IBM and Microsoft are investing

Heavily in IoT technology.

The regulations and standards for IoT are in the process of being set around the world.

However, companies working in this area are not waiting for formal bodies to set the

Rules. They are banding together to work on informal standards until formal IoT

Standards are enshrined, probably in 2017. The challenge is that not only do devices

Have to meet these parameters but apps/software backbone, analytics, etc. have to be

Built to facilitate interaction, interfacing and efficiency.

Homes are being transformed into smart homes, where everything from the lights to

The locks can be controlled from a smartphone. A Dutch start-up Sparked uses sensors

On cattle so if a cow is ill or pregnant, a message is immediately transmitted to the

Farmer.

LG, Samsung, Elecrolux and Whirlpool are making smart refrigerators, which can

Sense what kinds of products are stored inside them and keep track of relative

Freshness and availability through barcode or RFID scanning. LG has launched a range

Of smart appliances equipped with 'HomeChat'. .

In India, the first set of IoT-enabled products and services are already being seen. In

Bangalore, Electronic City is poised to work 'smart' with smart systems deployed for

Water, parking, security, etc. In Chennai, a start-up called MaxMyTv, connects devices

In the home to the T.V. to enable information flow, control and monitoring. A technical

And legal framework is also being readied.

One of the top most initiatives in the form of Digital India Program of the Government

Which aims at 'transforming India into digital empowered society and knowledge

Economy', is expected to provide the required impetus for development of the IoT

Industry ecosystem in the country