नाम Name :	_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _	
अनुक्रमांक Roll No :	_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _	प्राप्त अंक Marks Awarded:
पाठ्यक्रम Course :	_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _	
दिनांक Date :	_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _	अनुदेशक का अधाक्षर Instructor Initial:

Experiment No. PI -1

Study of Passenger Information System

System Description:

Trains information display system is one of the most useful passenger amenities at railway stations. It helps the passengers to know all information about trains such as arrival/departure timings, present status, platform numbers for arriving/leaving, formation etc.

In this lab session we shall study about different types of **LED Display Boards** provided in railway stations for passenger information**.** These display boards are mainly of two types -

1) **TADDB**- Train Arrival/Departure Display Boards
2) **CGDB** -Coach Guidance Display Boards

These display boards have modular construction using PCB modules of **16x48** or **8x48** matrix LEDs and comply with **RDSO specification No. RDSO/SPN/TC/61/2007** which states that the LEDs used in these modules should meet the following specifications.

Type of LED	**Diffused/ Colorless clear**
Colors	**Red/ Orange / Green/ Blue**
Viewing Angle	**Horizontal: 60^{o} (Min.) Vertical: 25^{o} (Min.)**
Size	**5 mm Oval Radial**
Operating Temperature	**- 30^{o} C to +85^{o} C**

TADDB - Train Arrival/Departure Display Boards. There are three types of TADDBs as

given below.

(a) MLDB - Multiline Display Board.

It can be of either **Single-face** or **Double-face display board** and is provided at the main entrance points of railway stations and sometimes on important platforms. It can be of **minimum 5-lines** to **maximum 10 lines** of display sizes. It provides information regarding all the trains arriving at and departing from the station in the format given below.

Train No	Train Name	Expt. Time	A/ D	PF No
2723	A.P Express	06.25	D	1
8645	East Coast Express	18.30	A	9
2701	Hussain Sagar Express	12.10	A	10
2285	Duranto Express	12.30	D	1
2604	Chennai Express	16.55	D	2

Fig.1.1 - Display Format of MLDB

(b) AGDB- At a Glance Display Board.

This is a **single-face display board** used to provide complete information about a single train at a time. The information is displayed in three lines. First line displays train no, train name, train arrival/departure time and the platform number just the same as it is given in MLDB. The second and third lines display **Train-formation** of that particular train with its detailed coach positions starting from engine.

Train No			Train Name					Expt. Time				A / D		PF No
7031			Falaknuma Express					10.35				D		2
ENG	G	S1	S2	S3	A1	A2	B1	B2	B3	S4	S5	S6	S7	S8
S9	S10	S11	S12		S13	S14	G							

Fig.1.2 - Display Format of AGDB

(c) SLDB – Single Line Display Board.

It is also called as Platform Display Board**- PDB** . Generally, it is a **double-face display board** provided on every platform. It displays information of a train which is about to arrive or depart from the platform on which it is provided.

Train No	Train Name	Expt. Time	A / D	PF No
7035	Telangana Express	07.30	D	1

Fig.1.3 - Display Format of PDB

CGDB- Coach Guidance Display Board.

CGDB boards are provided along the entire length of a platform for the purpose of giving individual **coach position** information of a train which is about to arrive on to that platform. Every CGDB is a double-face display board and small in size just enough to display only 4 characters/numerals at a time. As shown in fig.1.4 (a) and (b) given below, these display boards are used for displaying-

1. **Train No/ Coach No** - one at a time alternately, when a train is arriving on platform
2. **Station Name / Railway Name** (codes) - by default when there is no train.

(a) Train No/ Coach No. Display (b) Railway/Station Name Display

Fig. 1.4 Display Format of Coach Guidance Display Board

The following devices are also needed in the PIS network other than the display boards discussed above.

1) **Control Console Unit** (CCU) - It has two PCs located at a central place for feeding data to display boards and also to control the display parameters. RDSO approved IPIS software is installed on both the PCs of CCU to facilitate data entry, editing and network management functions.

2) **Communication Hubs**

   a) MDCH - Main Data Communication Hub.

   It receives PI data directly from CCU PCs and passes on the same to PDCH and display boards - MLDB and AGDB.

   b) PDCH - Platform Data Communication Hub.
   It is connected to MDCH to receive PI data and send the same to display boards provided on different platforms. This hub is similar to MDCH

In addition to the display system, **audio announcement facility** is also provided in stations for making announcements on different platforms about trains and also about other required information. The following fig.1.5 shows the general connection scheme on a PIS network.

The two PCs of CCU offer redundancy in working to provide interruption-free service even if one of them fails. The PIS network uses the following two types of serial communication standards for transmission of data around the network.

1. RS 232C interface - for communication between CCU computers and MDCH

2. RS 485 interface - for communication between MDCH, PDCH and display boards.

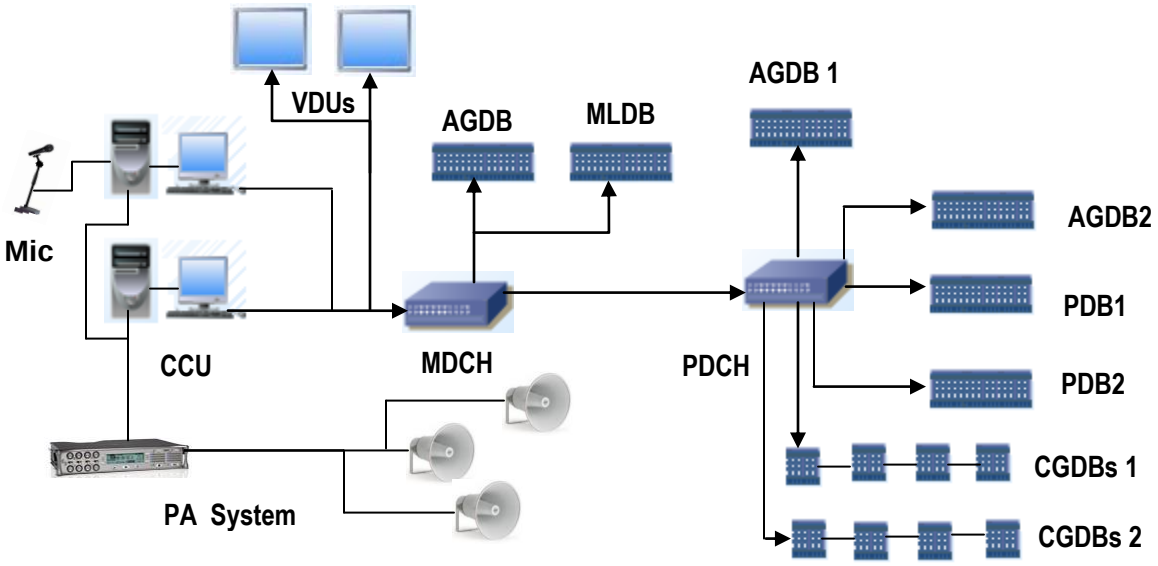

Fig. 1.5 Layout of IPIS Network

Exercise-1: List out different devices present in the Lab PIS network. Without disturbing the existing set up trace the connectivity between them and show the same thing with a neat diagram in the space given below.

Review Questions

1. Identify the types of display boards that are available in the PIS lab of IRISET?
2. Among these which are double-sided display boards?