

# **Digital Signage Display Systems**

*(Preliminary Document)*

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**Nov'2017**

## 1. Company Overview

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Cyberbeam Futuristic Innovations India (P) Limited is a company registered in Haryana having its registered office at Gurgaon and maintaining a design facility at Kolkata, West Bengal. The company is engaged in the business of design & development and manufacturing of hardware and software systems in the field of electronic communications, industrial automation systems, Industrials PC's, LED/LCD static and dynamic display systems, M2M devices and IoT based over the internet using the cloud and fixed server systems.

### Purpose of this document

The purpose of this document is to give a brief overview on the LCD/LED based static and dynamic display systems that are designed and intergrated at the facility in Kolkata. It effectively defines architecture and system design in order to give its user, a guidance on the architecture of the system that may be developed for Digital Signage applications at Airports, Railways Stations, Bus Terminals and other implementations in the transportation and advertisement industry.

Final Design documents shall be incrementally and iteratively produced during the system development life cycle, based on the particular circumstances of the information technology (IT) project and the system development methodology used for developing the system. Its intended audience is the project manager, project team and the development team. Some portions of this document, such as the user interface (UI), may be shared with the client/user, and other stakeholders whose input/approval into the UI is needed.

The document underlines the different types of LCD/ LED displays varying from sizes upto 84 inch, that are applicable for indoor and outdoor signage applications. The Android platforms are based on high speed processors with USB/Ethernet/Wifi Interfaces and HDMI output to interface to the LED display. The displays can be run through USB drives or over a 3G/4G connectivity.

### Assumptions & Constraints

#### Assumptions

It is assumed that the display systems would be operated at transportation terminals, either indoor or outdoor in a non-hazardous zone. The temperature shall not exceed a maximum of 45 degree Celsius with 95% RH (Non-Condensing).

#### Constraints

**Hardware or software environment:** The system operates over an Android platform (Windows not supported). The hardware supported is a single board computer with peripherals and inbox data storage.

**End-user environment:** Standard indoor/outdoor mount, standing or hanging and operates from 230VAC/50Hz.

**Standards compliance:** IP54/IP65 Aluminium/MS Framing with steel gray powder coated paint.

**Internal Data Storage Memory:** 16/32/64 GB

## **2. General Overview and Display Specifications**

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This section describes the principles and strategies to be used as guidelines when designing and implementing the system.

The LED displays come in varying sizes upto 84 inch, standing or hanging type with the unit enclosure made out of a metal that is corrosion resistant, or aluminum and is appropriate for the required location and size.

The enclosure includes power supplies, controllers, a player, service circuit breaker, power surger and lightning protectors, as well as being anchored at the location. The LED display unit enclosure is covered on all sides.

<b>#</b>	<b>Parameter</b>	<b>Details</b>
1.	LED technology	LED Panel, RGB, SMD technology
2.	LED Brightness	300 to 500 cd/m <sup>2</sup>
3.	Resolution	FHD 1920 x 1080
4.	Viewing angles	More than 120 degrees(vertical and horizontal).
5.	Optional	High Brightness Displays upto 3000/6000 cd/m <sup>2</sup> for 75/55 inch
6.	Aspect Ratio	16:9
7.	Operating Hr	24x7
8.	Input	HDMI
9.	Pixel Pitch	6mm or Higher
10.	Service Access	Front or Rear
11.	Display lifespan (manufacturer defined)	Appropriate for constant 24/7 work
12.	Enclosure	IP54/ IP65
13.	Digital video connections	HDMI
14.	Media Controller	IP based (TCP/IP, UDP) running over Android platform.
15.	Command and control	RS232, RJ45
16.	Power supply	230 VAC/ 50 Hz
17.	Operating temperature	0-45 degree Celsius

**3. Typical Display Examples (Branded - Korean/Chinese Make)**

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84"

- Ultra HD: 3,840 x 2,160
- Brightness: 350 cd/m<sup>2</sup> (typ)
- Bezel: 34 mm
- Built-in 10-point multi-touch
- Ghost-free touch (IR Spread)



75" / 65" / 55" / 49" / 43" / 32"

10"

- HD: 1,280 x 800
- Brightness: 400 cd/m<sup>2</sup>
- Bezel: 14 mm (Even bezel)
- Built-in touch
- 16/7 operation
- PoE (Power over Ethernet)



75" / 55"

- Enclosure
- Full HD: 1,920 x 1,080
- Brightness: 3,000 cd/m<sup>2</sup>
- Operating Temperature: -30°C to 50°C
- Dust & Humidity Protection Designed with IP56 Rating

# CYBERBEAM FUTURISTIC INNOVATIONS INDIA PVT LTD.

32"

- Full HD: 1,920 x 1,080
- 24/7 operation



55" / 49"

- Full HD: 1,920 x 1,080
- Transparency rate:  
10% (55"), 9.5% (49")



75" / 65" / 55" / 49" / 43" / 32"

- All Displays are branded ones tested as per standard EMC certifications.
- Safety specifications as per UL/TUV standards
- Max. size upto 84 inch displays
- FHD/ Ultra FHD displays
- Panel Technology – IPS
- Aspect Ratio 16:9
- (Optional) - Ultra Bright Displays, Min. Brightness (after calibration)- 6000

#### 4. Type Digital Signage Network Diagrams (Examples)

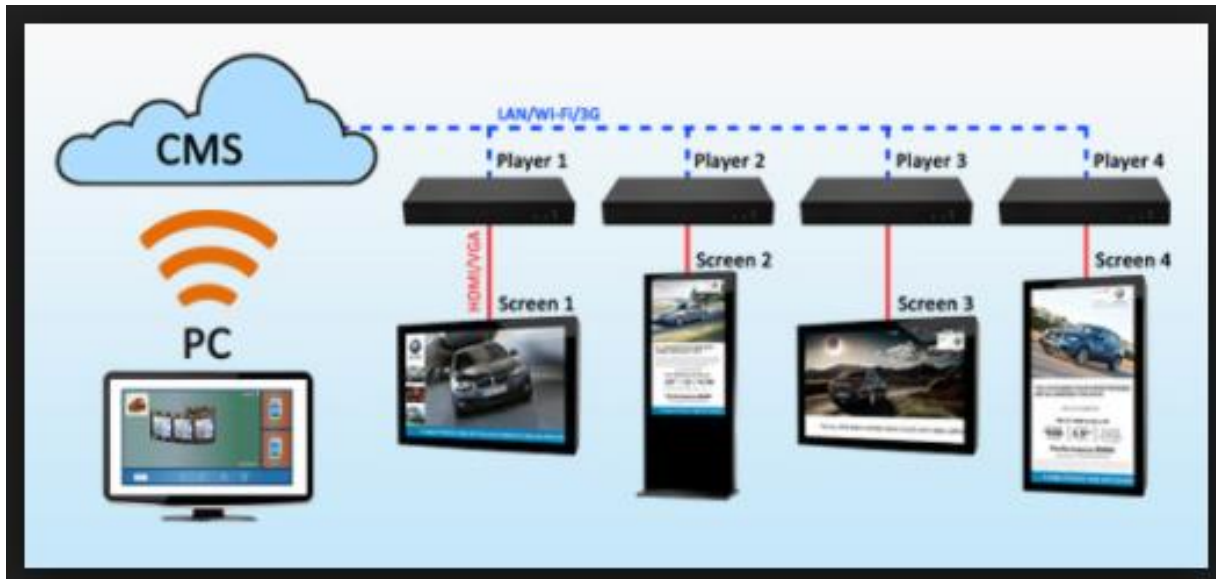


Figure: 1

### Digital Signage Display Management Network

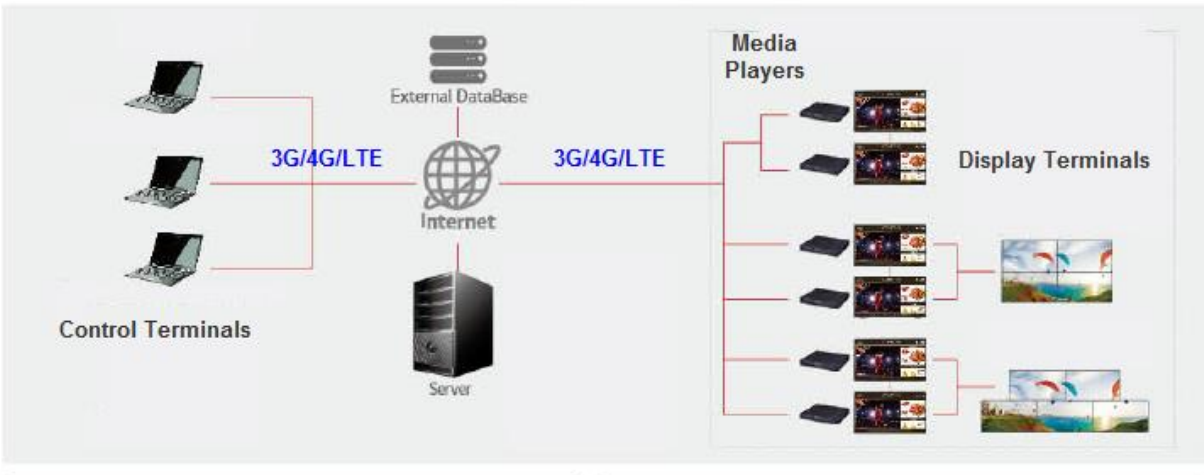


Figure: 2

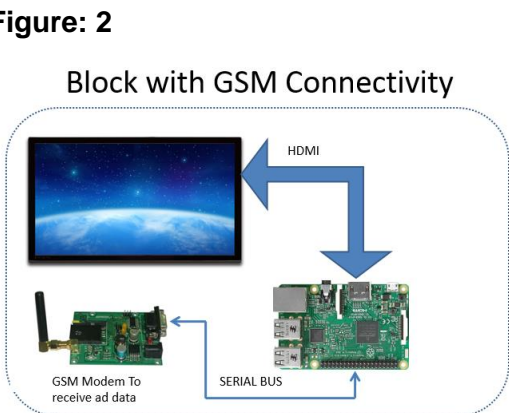


Figure: 3

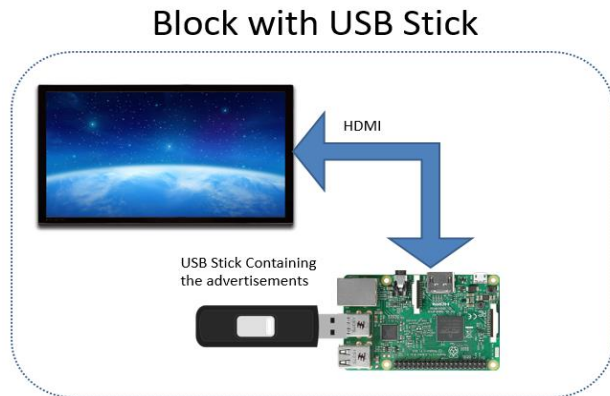
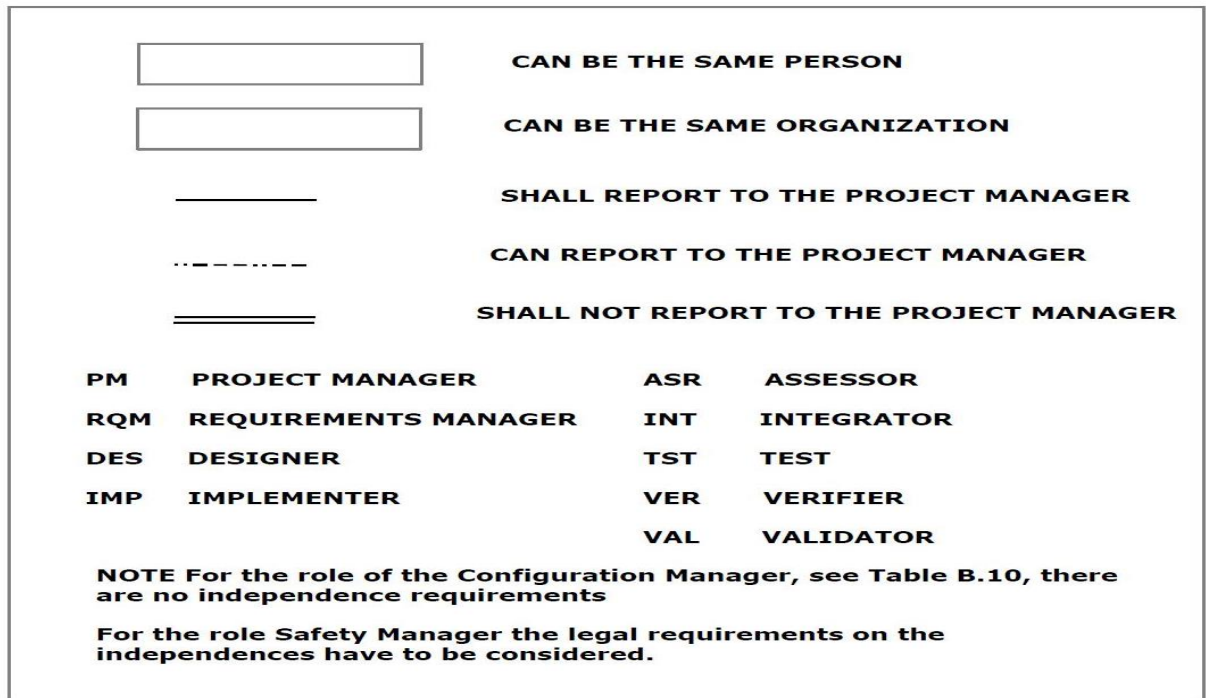
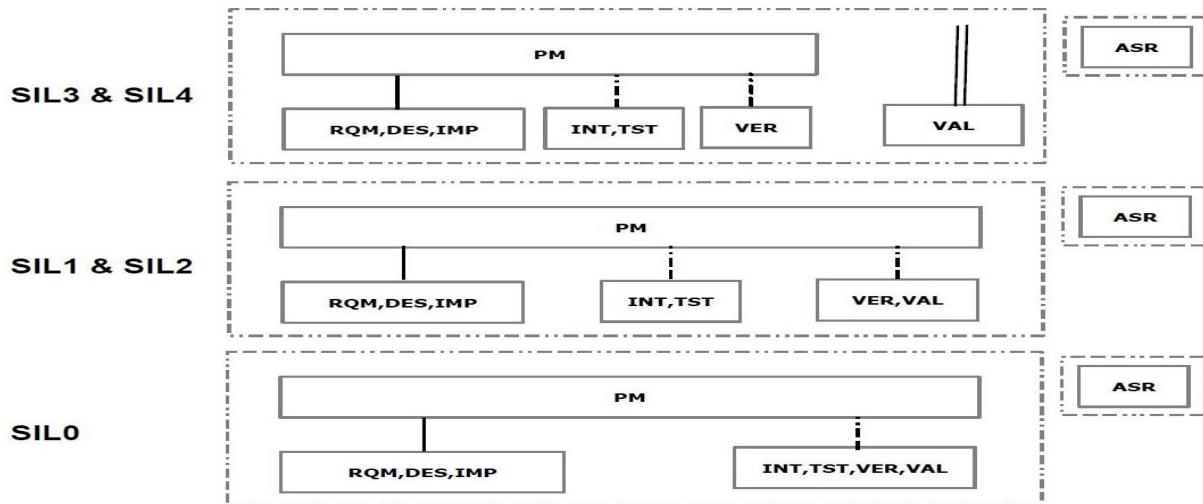


Figure: 4

## 5. Reliability & Safety Management System

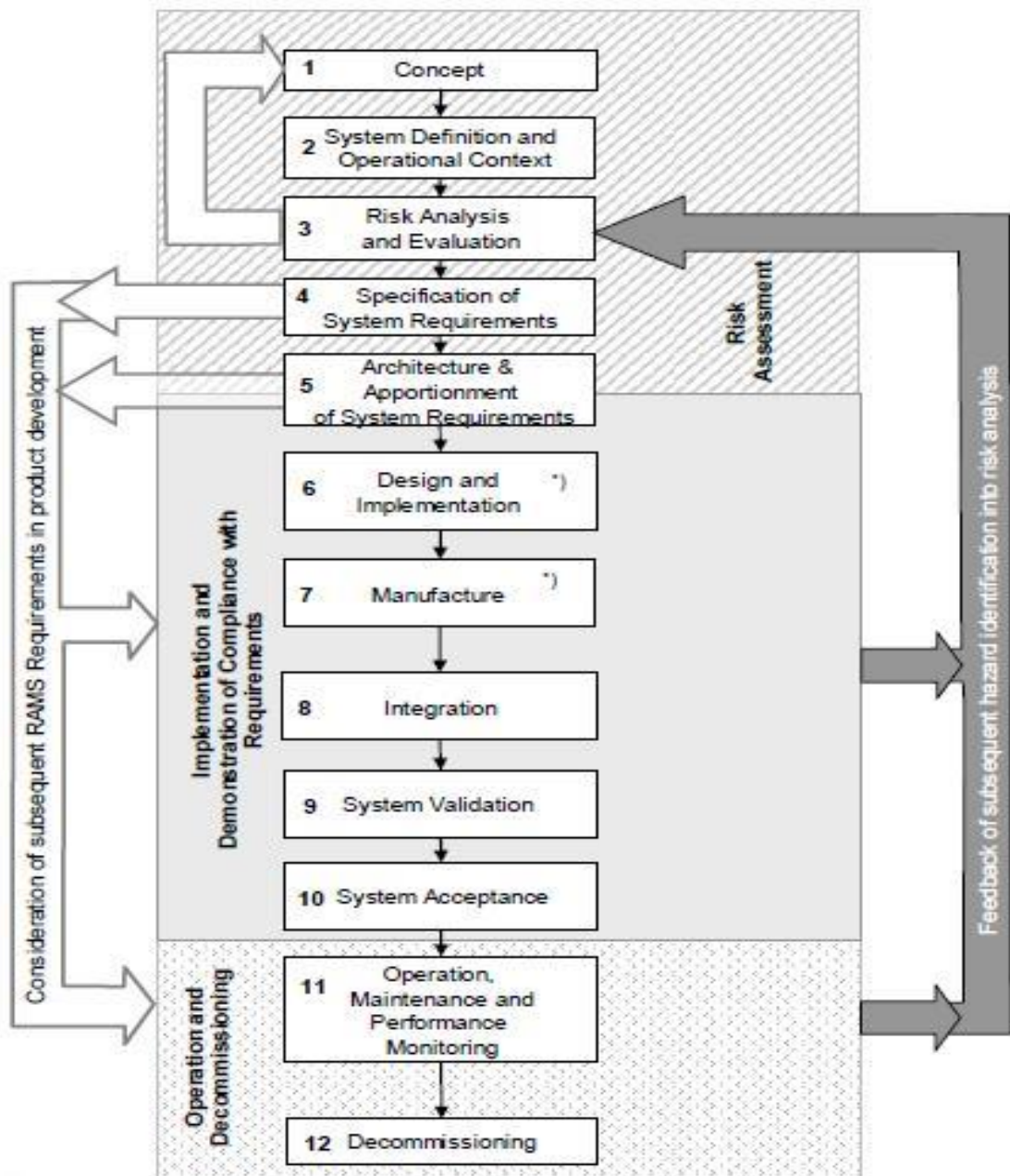
The Reliability, Maintainability, Availability & Safety of the system, sub-system or equipment would be managed by an effective quality management process which would conform to the RAMS as described in relevant standards. The purpose of this process is to further reduce the incidence of systematic faults.

The Reliability, Maintainability, Availability & Safety, would undergo several steps of refinement based on the ongoing experience (including field trial experience) of the development team and feedback from the QA, IV&V and Hardware & Software Assessors.





## 6. System Design Life Cycle (COTS)



**Key:**

RA	Correlated process steps in European legal framework
DoC	
O&D	

\*) may contain many subsystems and components



## **7. Quality Management System**

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The quality of the system including its sub-systems, equipment, components shall be quality controlled by an effective Quality Management System (QMS) which shall be in place throughout the system life cycle. The evidence of the QMS shall be provided by documentary evidence to be elaborated in the Quality Management Report. The QMS shall minimize the incidence of human errors at each and every stage in the system life cycle and effectively reduce the risk of systematic faults in the system, sub-system or equipment. The QMS shall be applicable throughout the system/sub-system/equipment life of the product.

## **8. Manufacturing & Production**

All materials and workmanship should be of good quality. The system shall be manufactured under a strict Quality Assurance Program of adequate standard and all operational, application and maintenance instructions traceable to the design specifications. All test instruments necessary shall be available during the manufacturing process. The manufacturer shall ensure quality of the product as specified in the specifications.

## **9. Packaging & Delivery**

The equipment shall be so packed that it can withstand bumps and jerks encountered in rail/road transport including handling during transit. The customer shall receive what was ordered and what was approved before shipment in undamaged form. Adhering to the delivery schedule shall be one of the prime requirements; knowing fully well about the importance of on-time delivery, the company shall adhere to the delivery schedule.

***Conditions of Force Majeure are not within our control.***

***n.b. This is a preliminary document and should not be treated as a final specifications document for a technical bid. A final specifications documentation which includes a series of relevant documents shall be produced after interactions with the end user/customer and a possible visit to the site to evaluate exact site conditions.***

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