SMART INDIA HACKATHON 2022

MINISTRY OF CULTURE

PS: GM-751

3D PLANETORIUM

BY SPACEPLATO

From

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Ahmedabad, Gujarat

ABSTRACT

Over the last decade, hundreds of planetariums worldwide have adopted digital ‘‘full dome’’ projection as their primary projection and presentation medium. This trend has far-reaching potential for science centers. Digital 3D planetarium capabilities extend educational and cultural programming far beyond night-sky astronomy. These ‘‘digital domes’’ are, in essence, immersive visualization environments capable of supporting art and live performances and reproducing archeological sites, as well as journeying audiences through the local cluster of galaxies. Their real-time and rapid-update capabilities set them apart from giant screen cinemas. Studies suggest that well-designed immersive mediums communicate concepts better, create a greater interest in learning, and are more effective than a movie screen or television at conveying scientific concepts. This approach introduces digital domes as a new medium, then discusses ways in which the potential of these environments might be tapped in the future to meet scientific and cultural needs in VR planetarium of all types.

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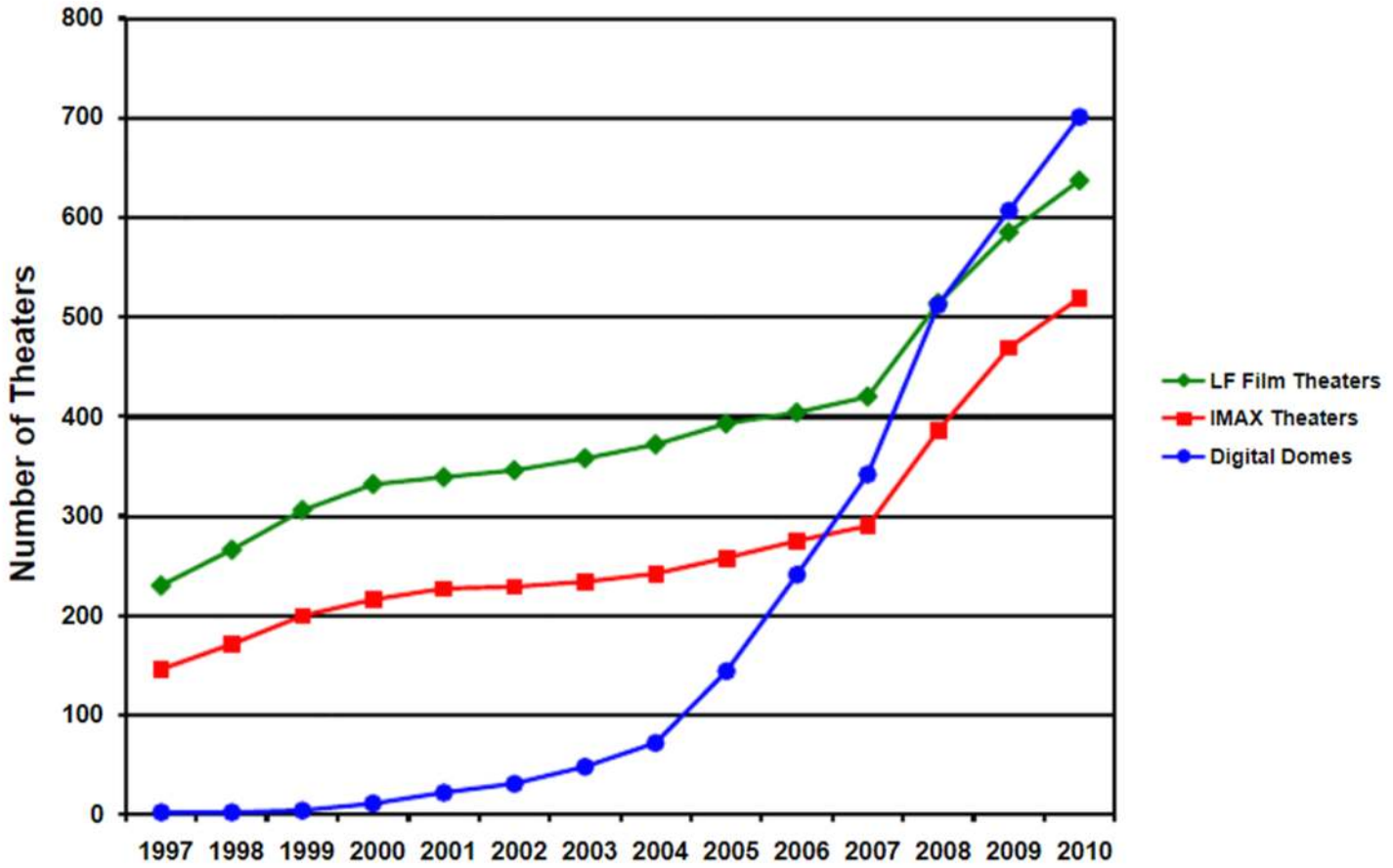
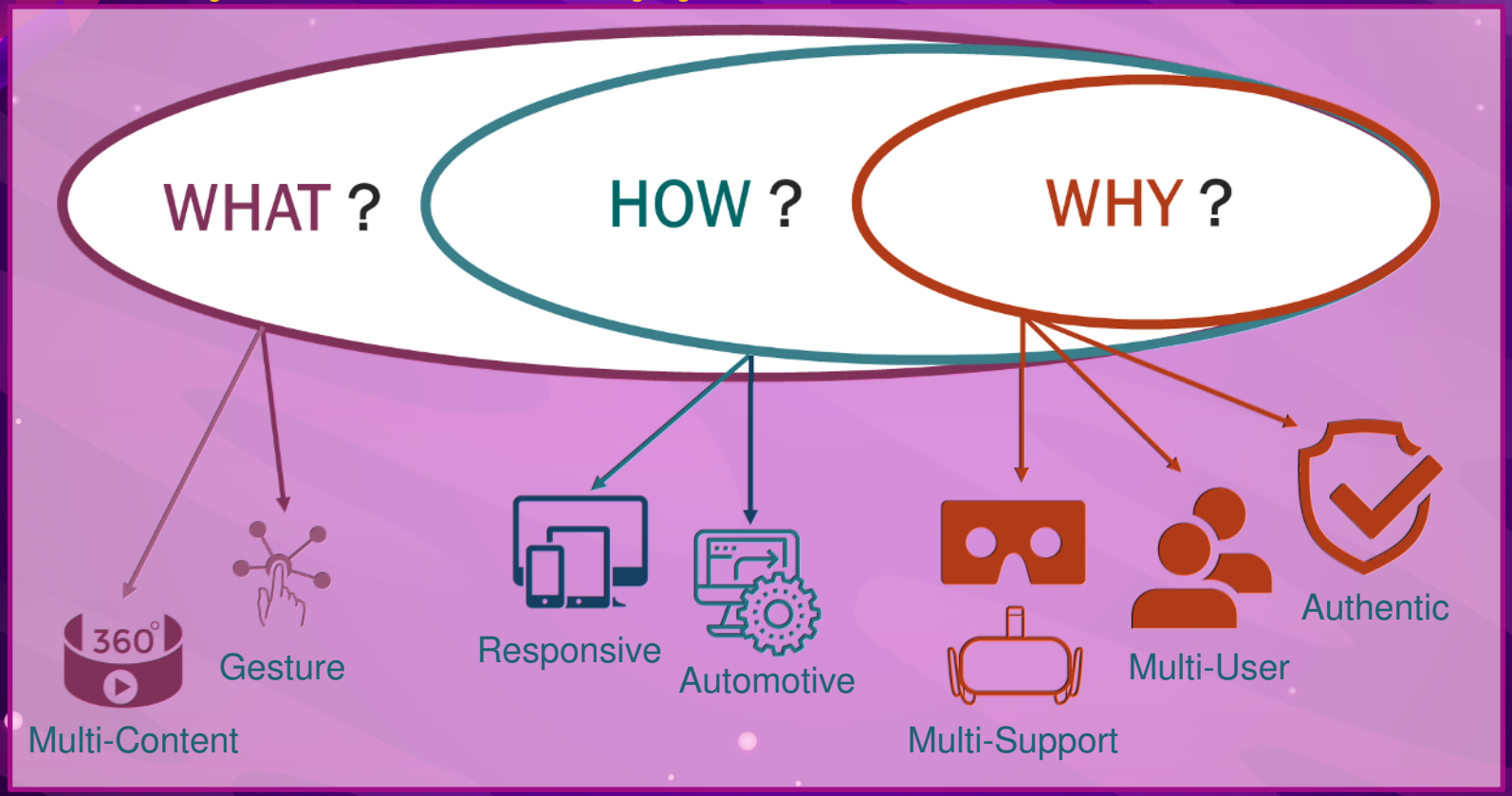
PAST SURVEYS
Surveys and Stats of Existing Systems

Planetariums are in the midst of an unprecedented transformation that is not only changing the underlying technology used to deliver planetarium programming, but also promises to radically expand the role of the planetarium in the modern museum and science center. Over the past decade, digital planetariums, also known as full dome theaters, have rapidly grown in number


Number of Theaters
800
700
600
500
400
300
200
100
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
LF Film Theaters
IMAX Theaters
Digital Domes


02
APPROACHES
Approaches to solve Problem

Purpose and Approach



OUR PHILOSOPHY

CURRENT TRENDS SUGGEST THAT DIGITAL DOMES MAY EMERGE AS A KEY COMPONENT IN A FUTURE DIGITAL INFRASTRUCTURE DESIGNED TO AGGREGATE AND DISSEMINATE EXPERIENTIAL DATA, INFORMATION, KNOWLEDGE, SIMULATIONS, ART, AND PERFORMANCES ACROSS A RANGE OF DISCIPLINES IN SCIENCE, ART, AND THE HUMANITIES

03

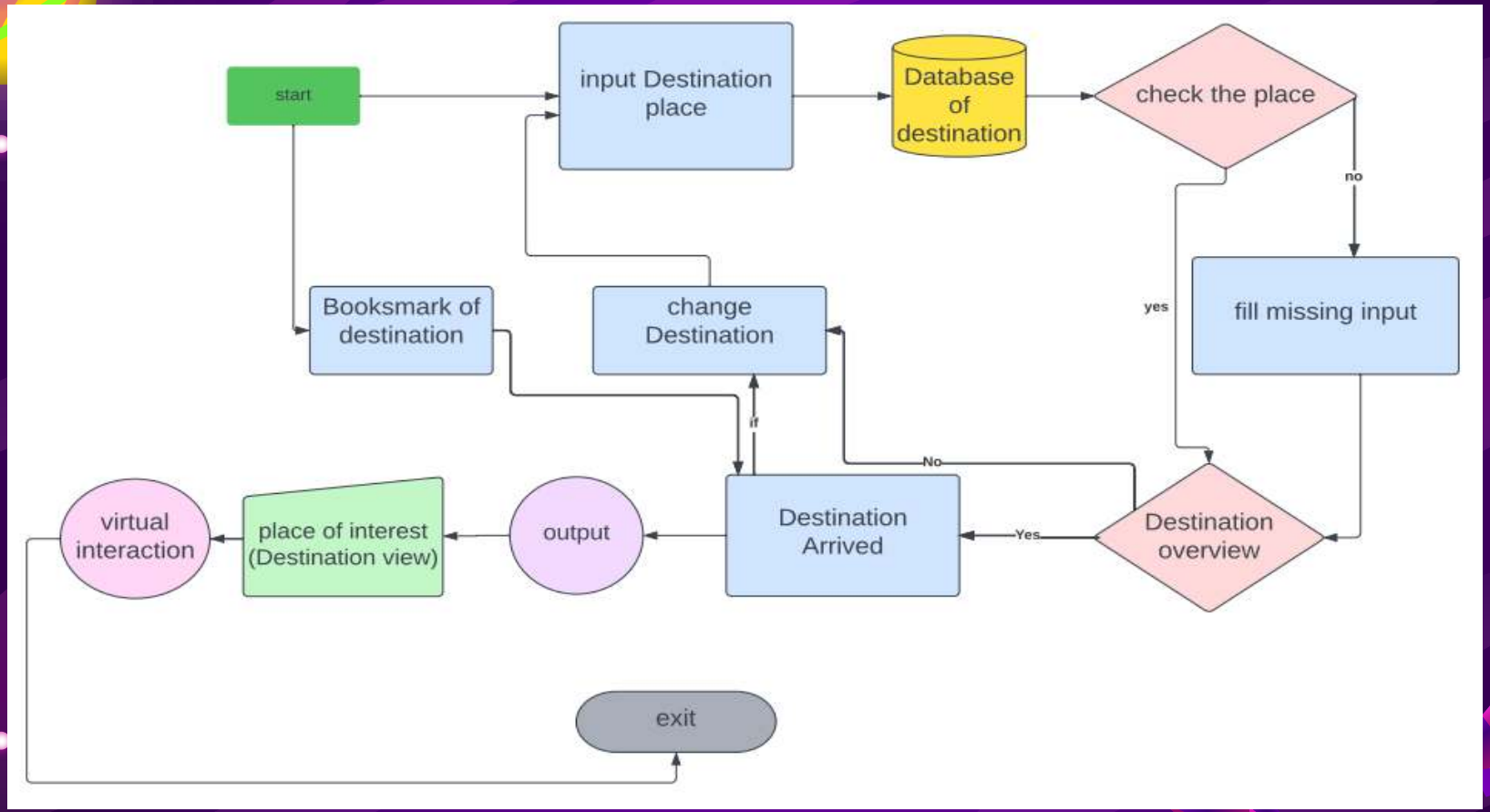
PROPOSITION

Our Proposed System for Problem & Innovation

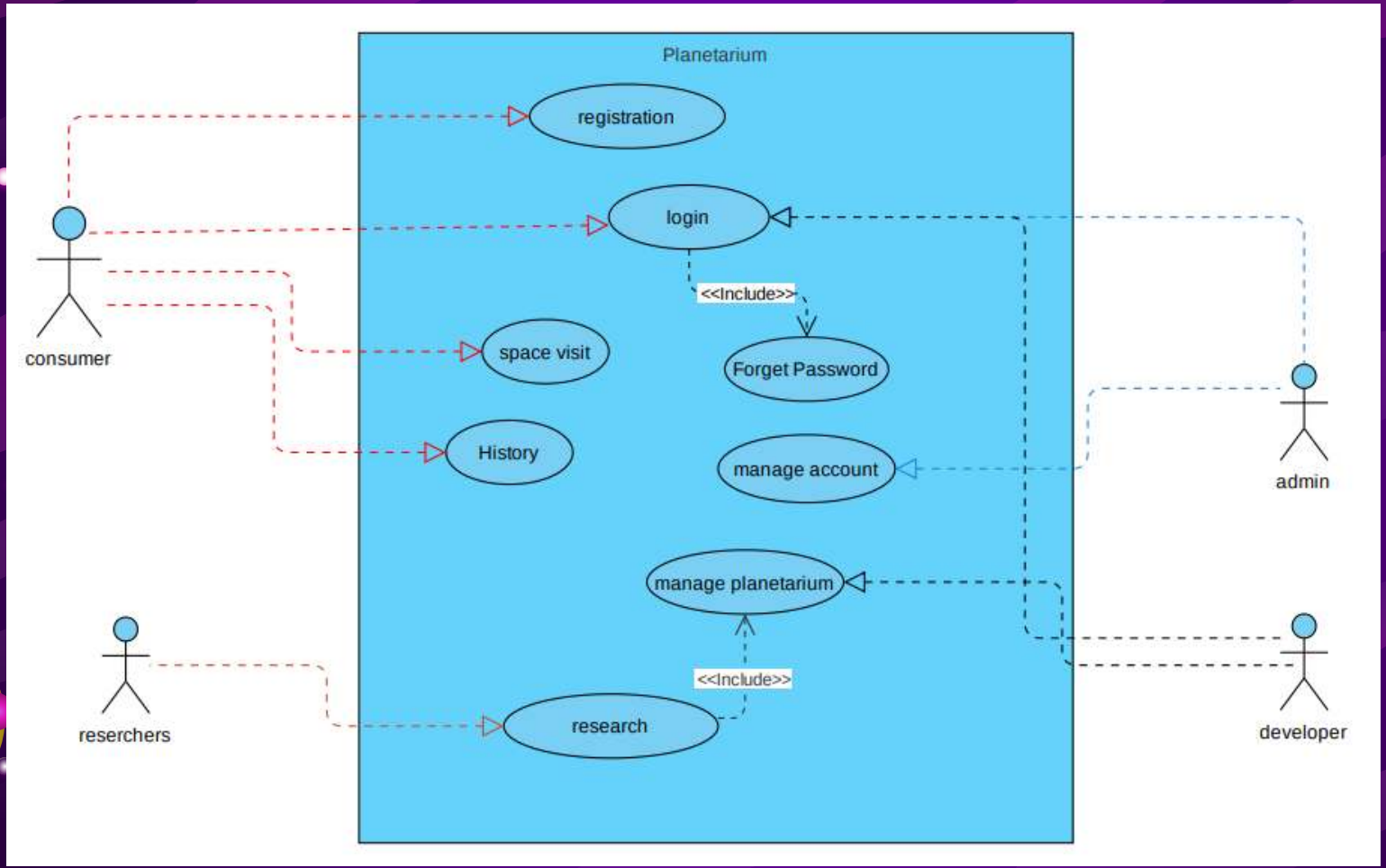
IDEA/ SOLUTION

- 3D VR Planetarium App contains not only 3D models but also an immersive VR experience.
- We will create whole ecosystem of space with its own realistic 360 VR celestials with spatial audio for best user experience and also input gestures and most sophisticated interface which makes users immersive experience to exploration.
- We will able to create & develop interests of youth of age group from 10-40 years, towards space science and this can give them access to new technology with knowledge of Inventions, Discoveries, Hidden Sciences of our ultimate Space of Universe explored in Human History.
- Approaches for innovative features like a self portrait picture on Celestial just like Neil Armstrong on Moon, Navigation from current location, Save Now Travel Later, Security (PIN System), Immersive Historical Events Experiences like Halley's Comet.

PROCESS FLOW DIAGRAM



USE CASE DIAGRAM



04

OUTCOMES

Possible Growth and Outcomes

ENJOYMENT + INVOLVEMENT

MOST AUTHENTIC INFORMATION

EXPLORATION + EDUCATION

PUBLIC AWARENESS IN SPACE VR

HIGH QUALITY EXPERIENCE

LESS SERVICE COST


05
TOOLS
Technologies and Tools been used

STELLARIUM

UNITY3D + WEBGL

- C# SCRIPTING
- 3D MODELS (AUTODESK, BLENDER)
- SPATIAL SOUND (AUDACITY)

ANDROID STUDIO

- FLUTTER
- DART
- JAVA

06

CHELLANGES

Limitations and Challenges to be faced

MAIN PROBLEMS

Affordability

Affordable for Heavy Data to maintain and Complex Big Web System

Lacks options

Not very much options available to develop as it is developing technology

COMPLEX TECHNOLOGY

File size

Database to store & process big files

Video quality

Video and Image quality of 360 / 3D contents

Resolution

Responsive to display in different resolution

space

Storage Space to store and host

HEALTH ISSUES

Anxiety

Dizziness

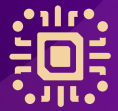
Eye strain

Radiation

Headache

Isolation

VR EXPENSES



Device

Mobile / Computer

Glasses

VR Headsets

Gloves

Haptic Devices

Spot

Space to locomote

07

FUTURE SCOPE

Future Scope and Conclusions

SPACE METAVERSE

AI BOT SPACE GUIDE

SPACE EXPERIMENTS IN VR

SPACE DIVING USING HAPTICS

OUR TEAM

NEERAJ VERMA	STUDENT – IT (MCA)
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MEENAKSHI DEVI	STUDENT – IT (MCA)
ASIFUL SHAIKH	STUDENT – IT (MCA)
NIRMAL PATEL	STUDENT – IT (MCA)
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PROF. NIRJARI DESAI	MENTOR – IT (MCA)
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THANKS !

SMART INDIA HACKATHON 2022

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