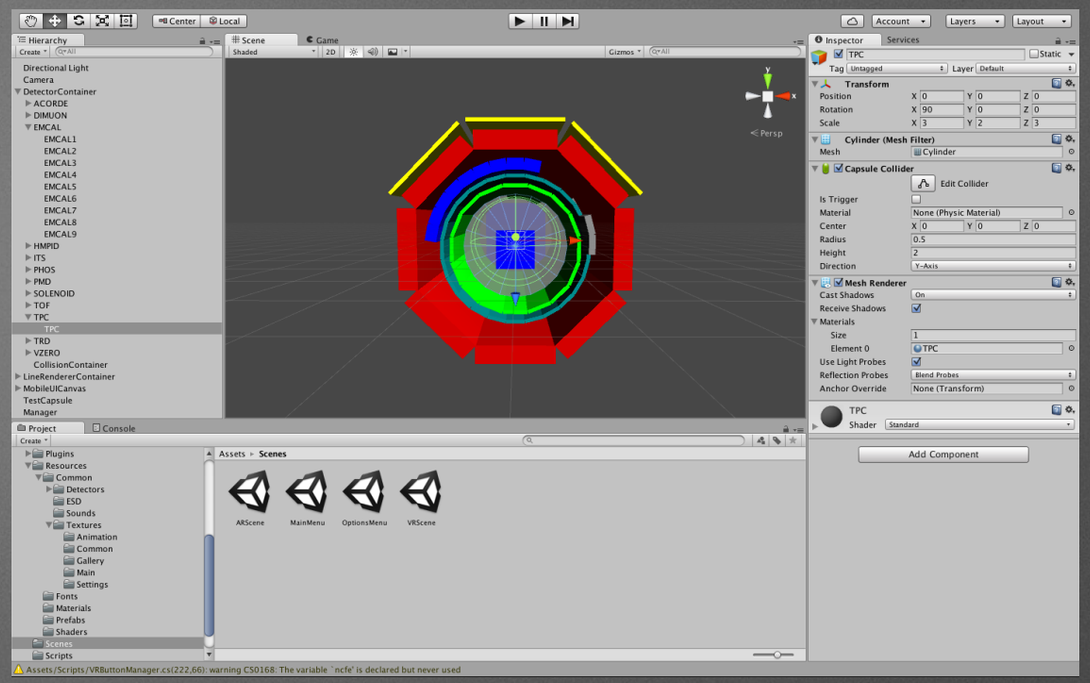
# MoreThanALICE

## Developing an augmented reality mobile application for the ALICE detector

J. Ouellette, B. von Haller, & J. Niedziela

# Goal:




Development of a mobile app in Unity describing the ALICE detector, featuring both

- an augmented reality (AR) interface, and
- a virtual reality (VR) interface,

as well as the potential to overlay nearly-live collisions occurring in the detector from a central database.

# Features Summary

ALREADY IMPLEMENTED

- VR detector mode, with
  - improved controls,
  - labeled detectors
- AR detector mode
  - labeled detectors that are tracked on the screen
  - functionality with detector models and pictures

    (with some caveats)

TO BE IMPLEMENTED

- ALICE collisions overlay
- Multi-language support (possibly limited)
- More accurate VR detector

# Features Summary

ALREADY IMPLEMENTED

- VR detector mode, with
  - improved controls,
  - labeled detectors
- AR detector mode
  - labeled detectors that are tracked on the screen
  - functionality with detector models and pictures

    (with some caveats)

TO BE IMPLEMENTED

- ALICE collisions overlay
- Multi-language support (possibly limited)
- More accurate VR detector

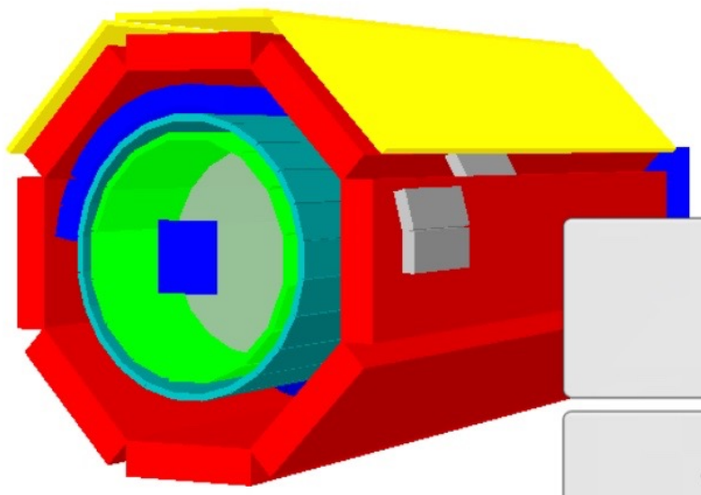
# MainMenu Scene

v 2.0.0

MORE THAN

ALICE

ALICE



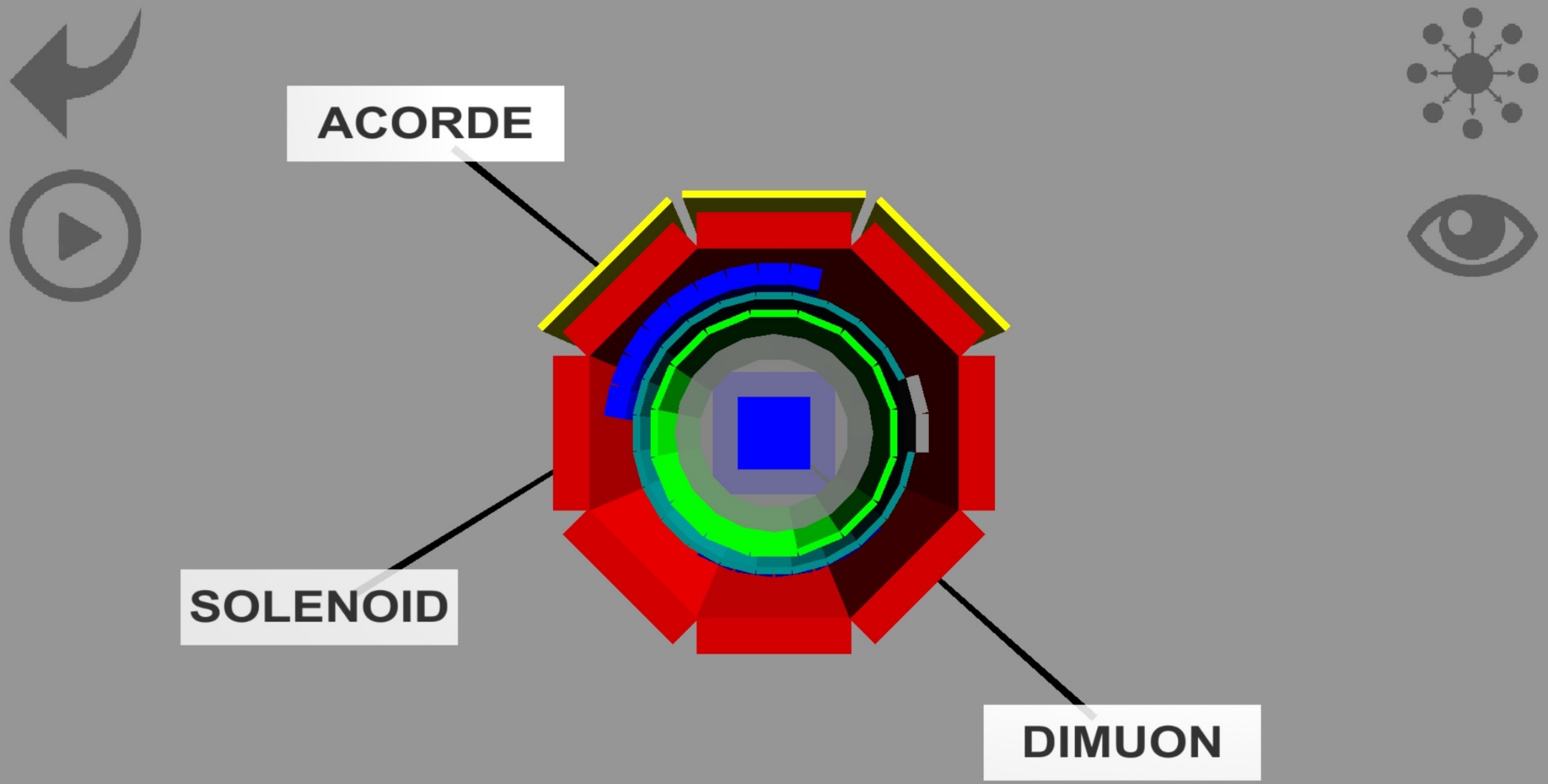
Camera Mode

Virtual Detector Mode

CERN

Copyright © 2016 The ALICE Collaboration. All Rights Reserved.
Written by J. Abelski, A. J. Felis, J. Niedziela, J. Ouellette, J. P. Sala, & B. von Haller
Model created by T. Virgili

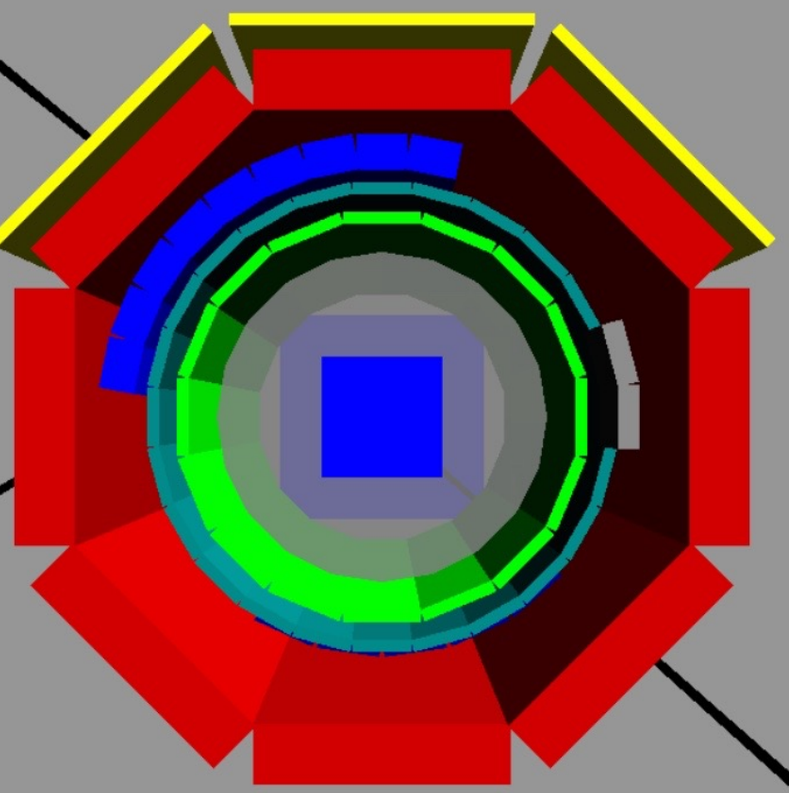
# Virtual Reality Scene



# Virtual Reality Scene

Back

ACORDE



SOLENOID

DIMUON

# Virtual Reality Scene

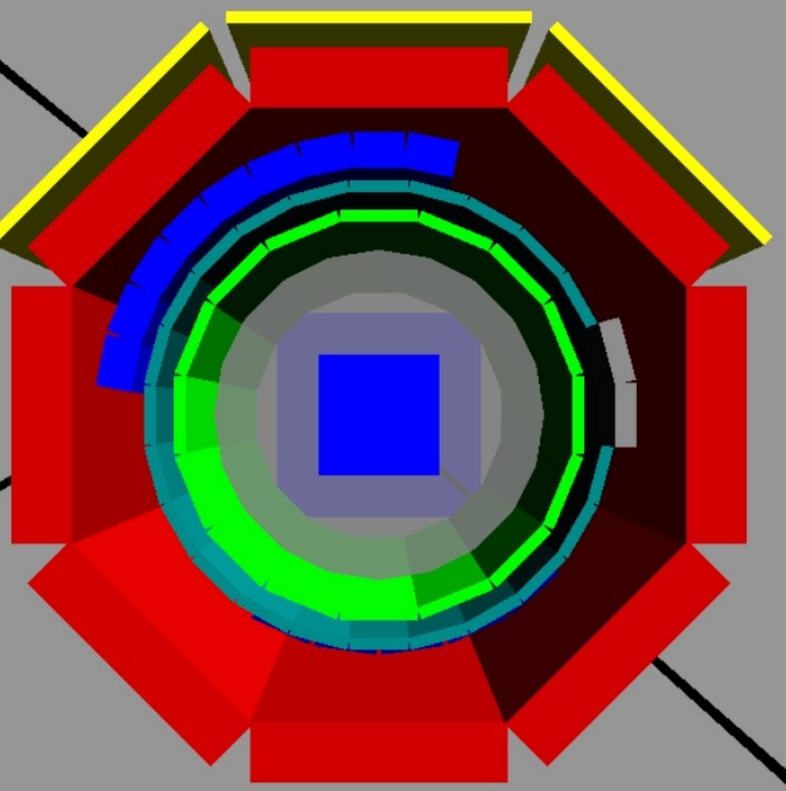
Back

ACORDE

Activate Collisions

SOLENOID

DIMUON



# Virtual Reality Scene

Back

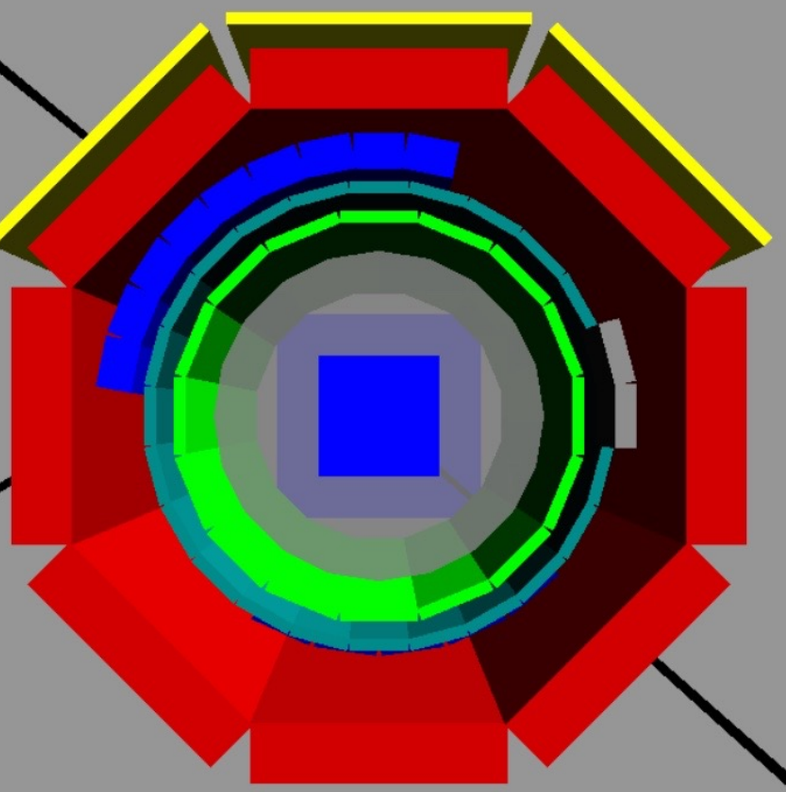
ACORDE

Exploded View

Activate Collisions

SOLENOID

DIMUON

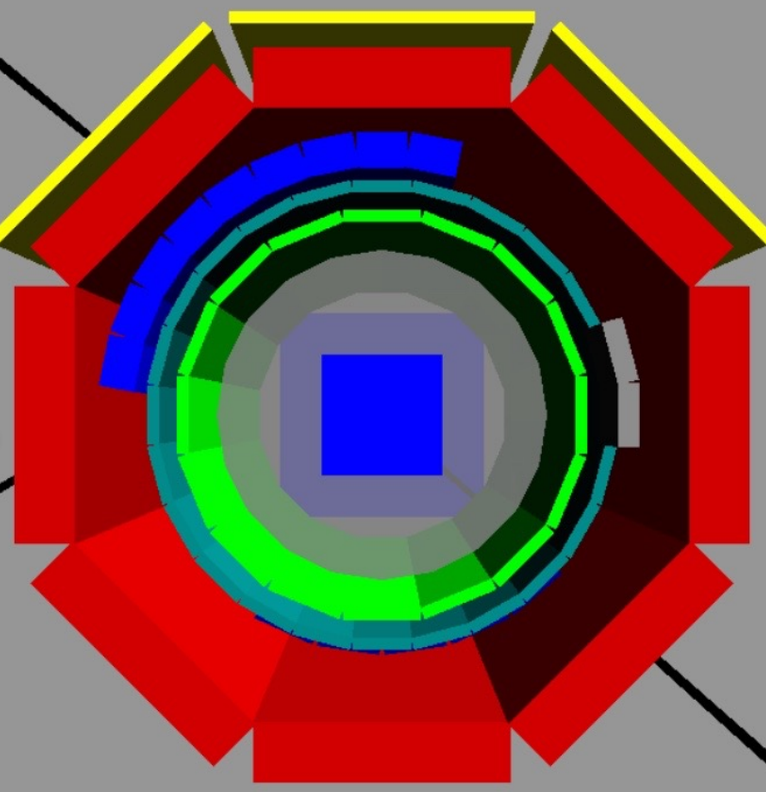


# Virtual Reality Scene

Back

Exploded View

ACORDE



Activate Collisions

Transparent View

SOLENOID

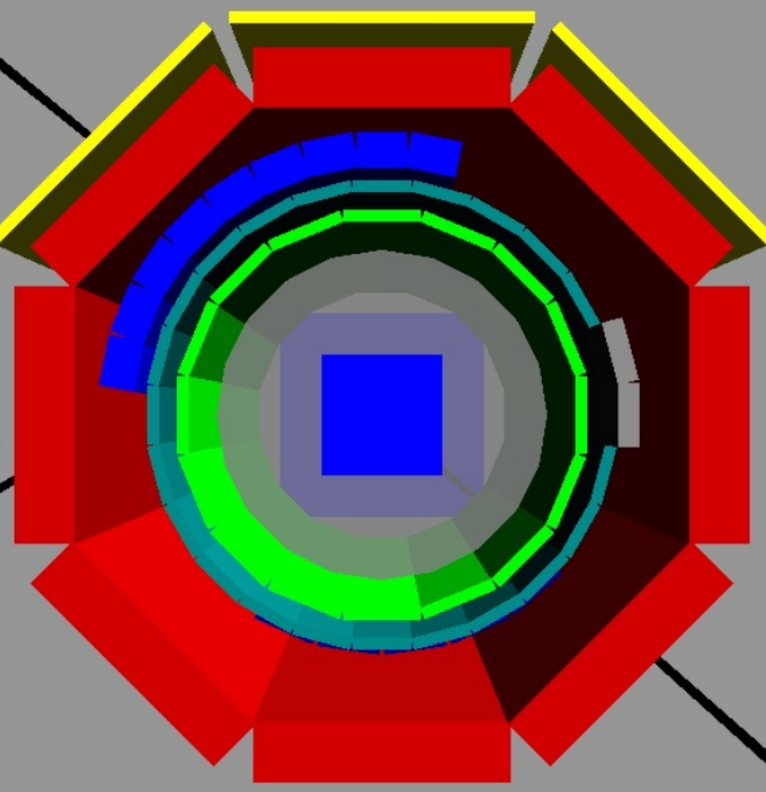
DIMUON

# Virtual Reality Scene

Back

Exploded View

ACORDE



Activate Collisions

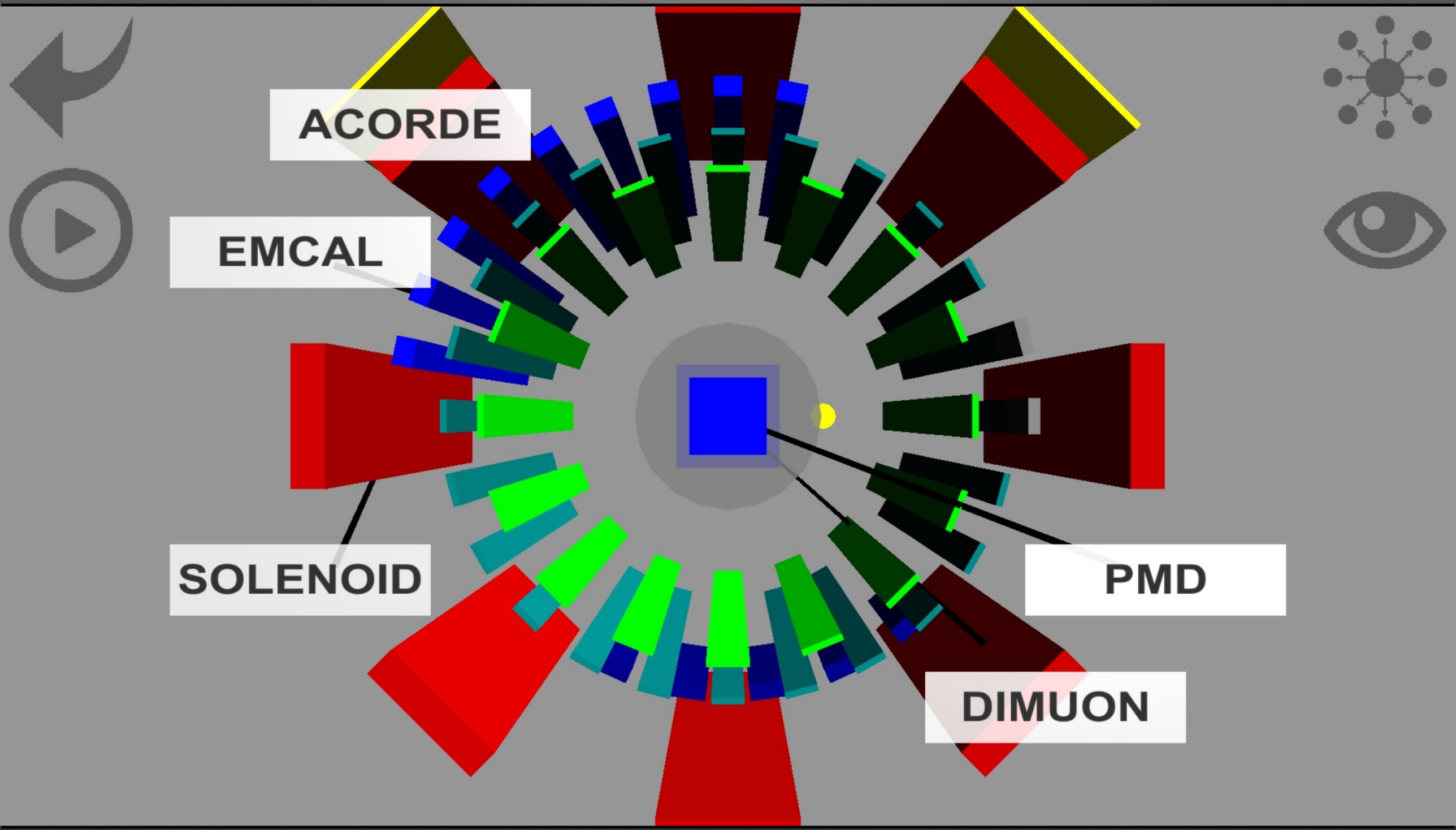
Transparent View

SOLENOID

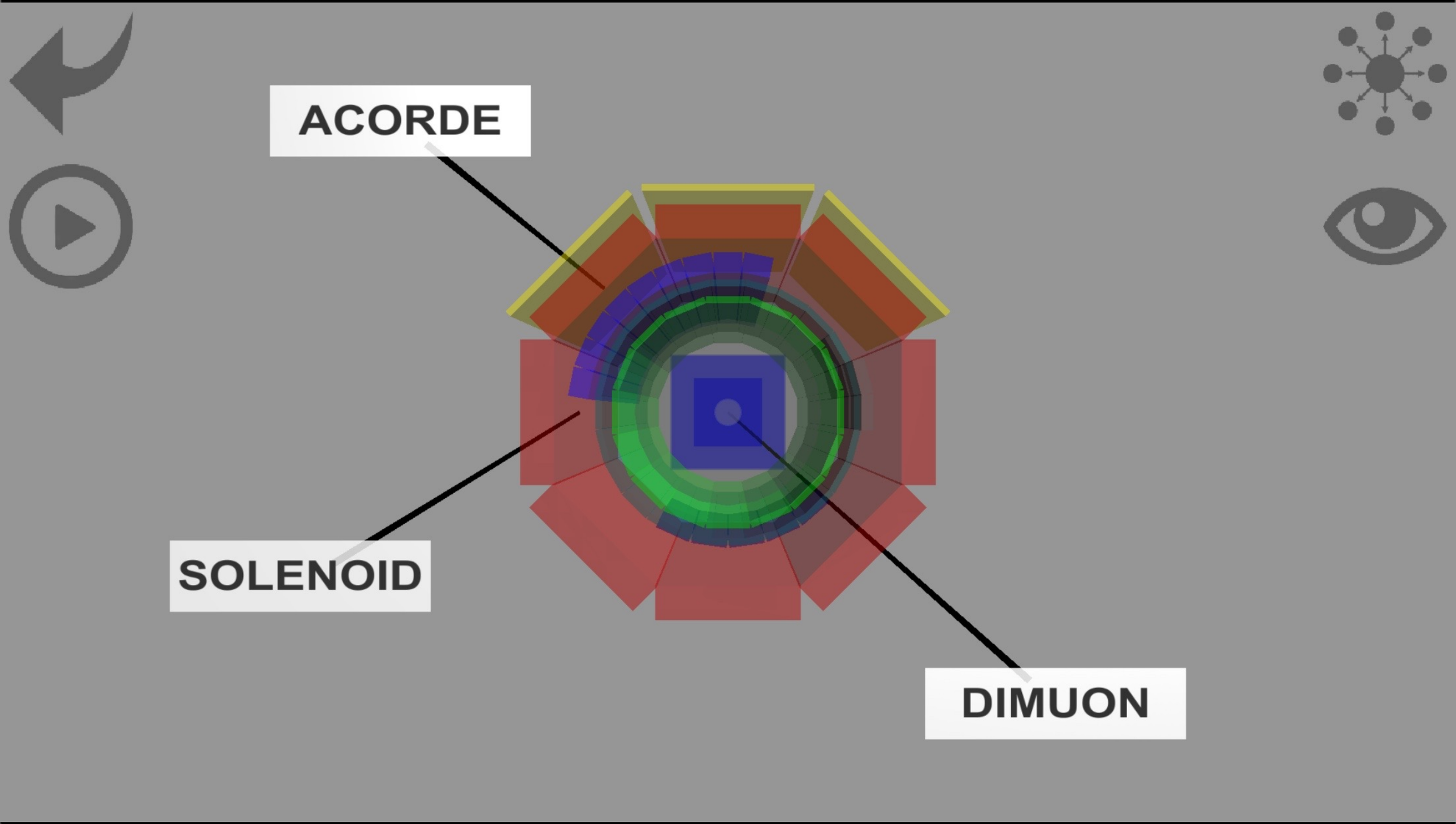
DIMUON

Interactable Buttons

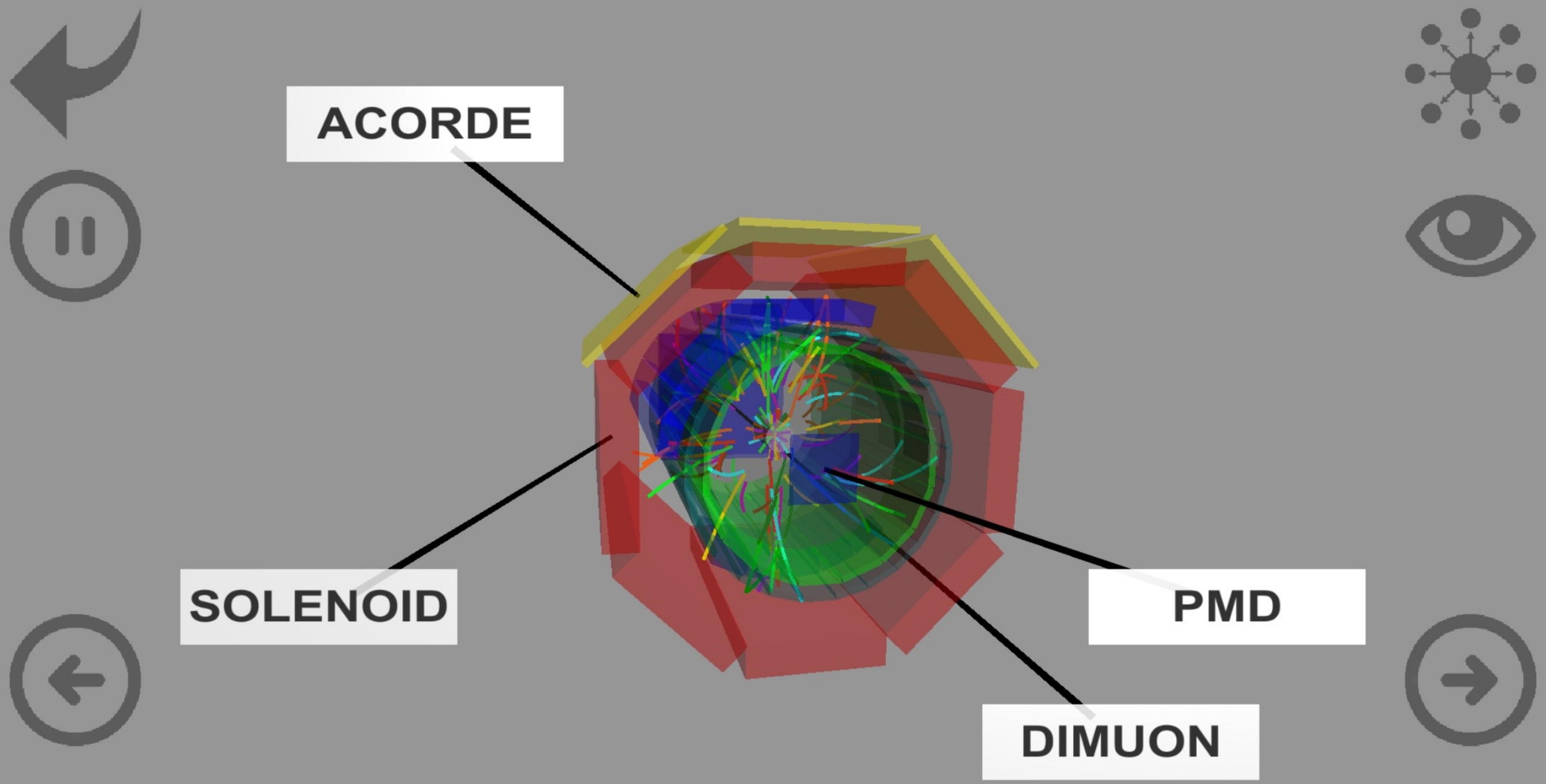
# Exploded View Mode



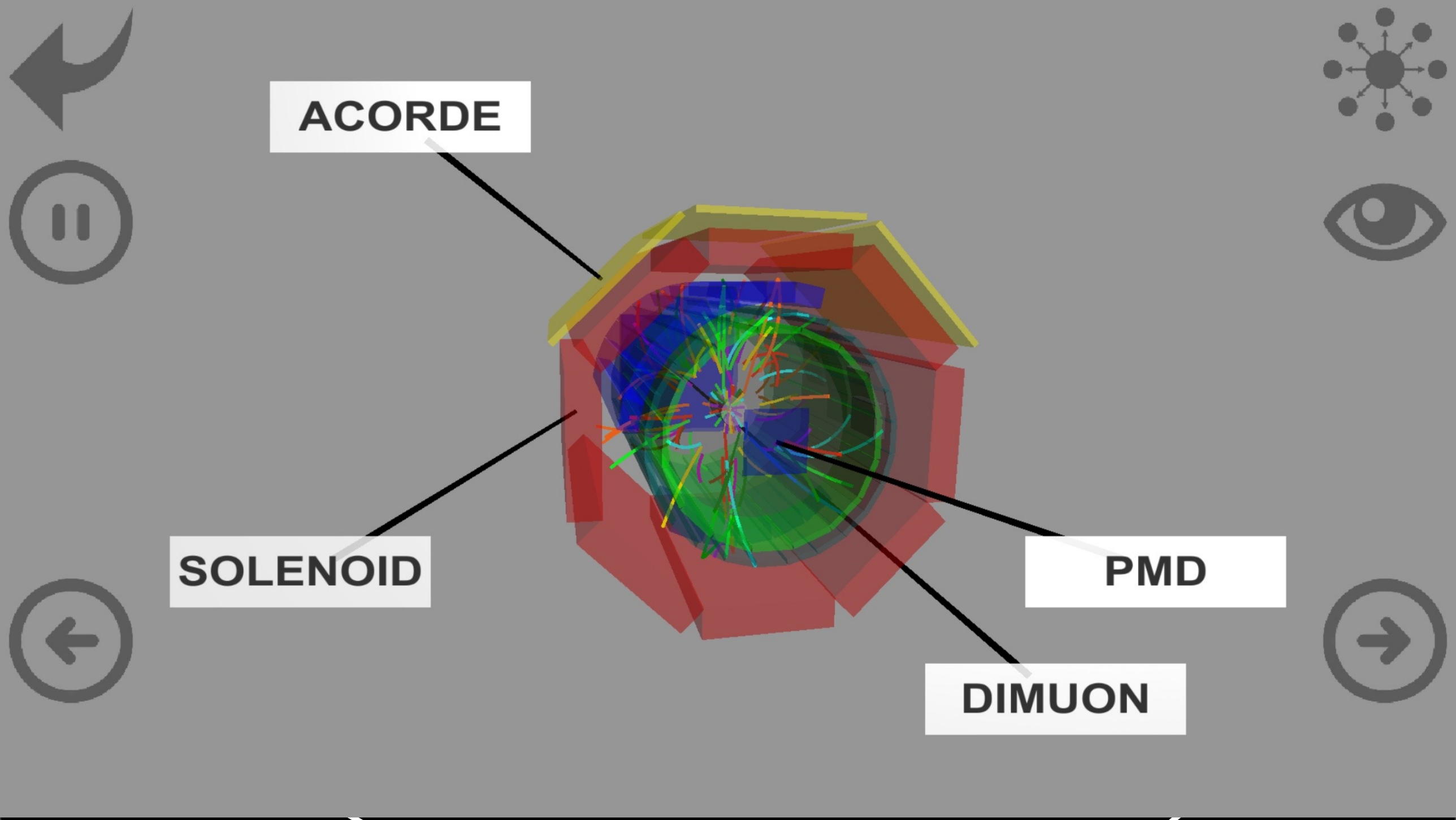
# Transparent View Mode



# Collision Mode



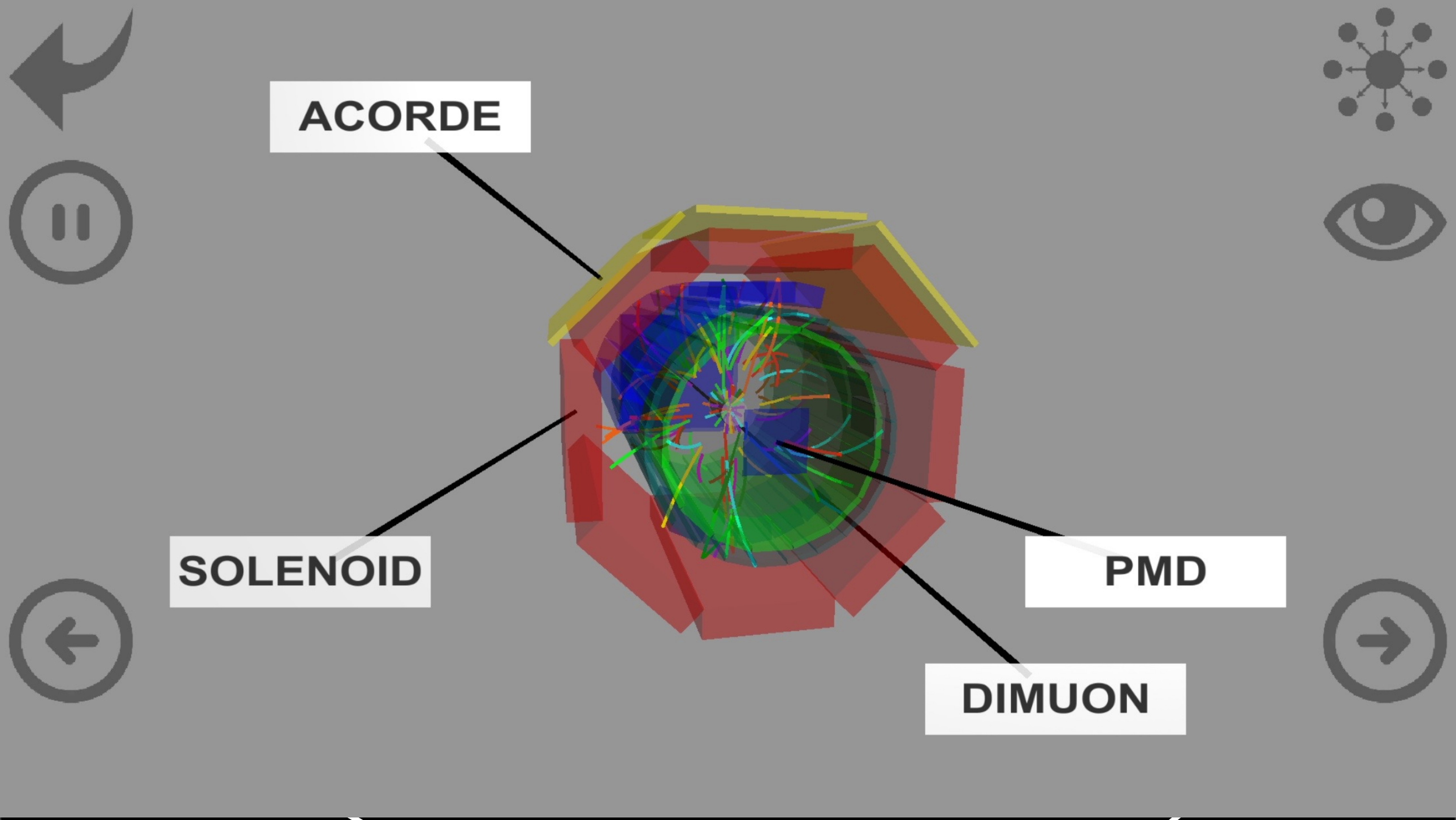
# Collision Mode




Previous Collision

Next Collision

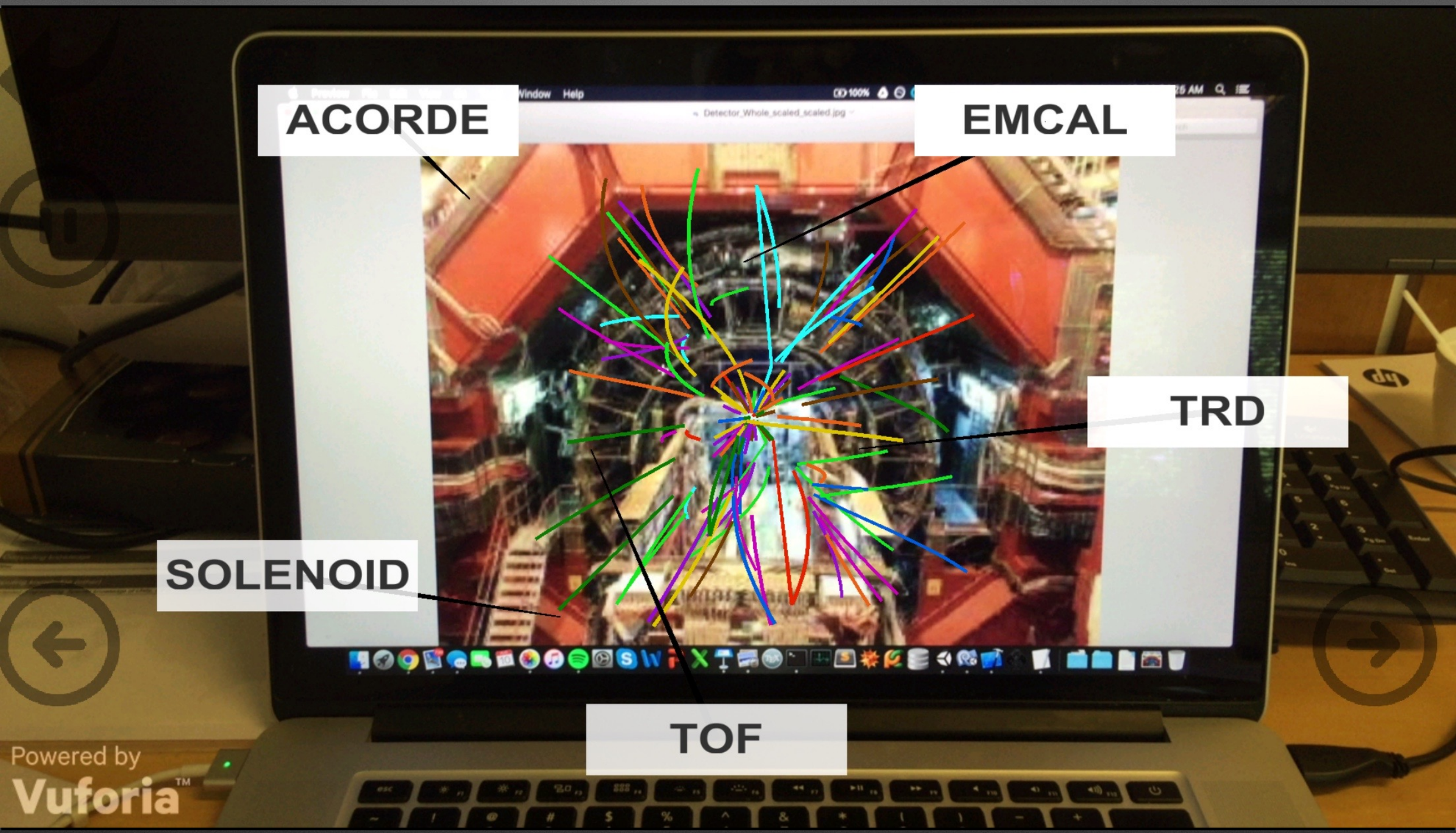
# Collision Mode



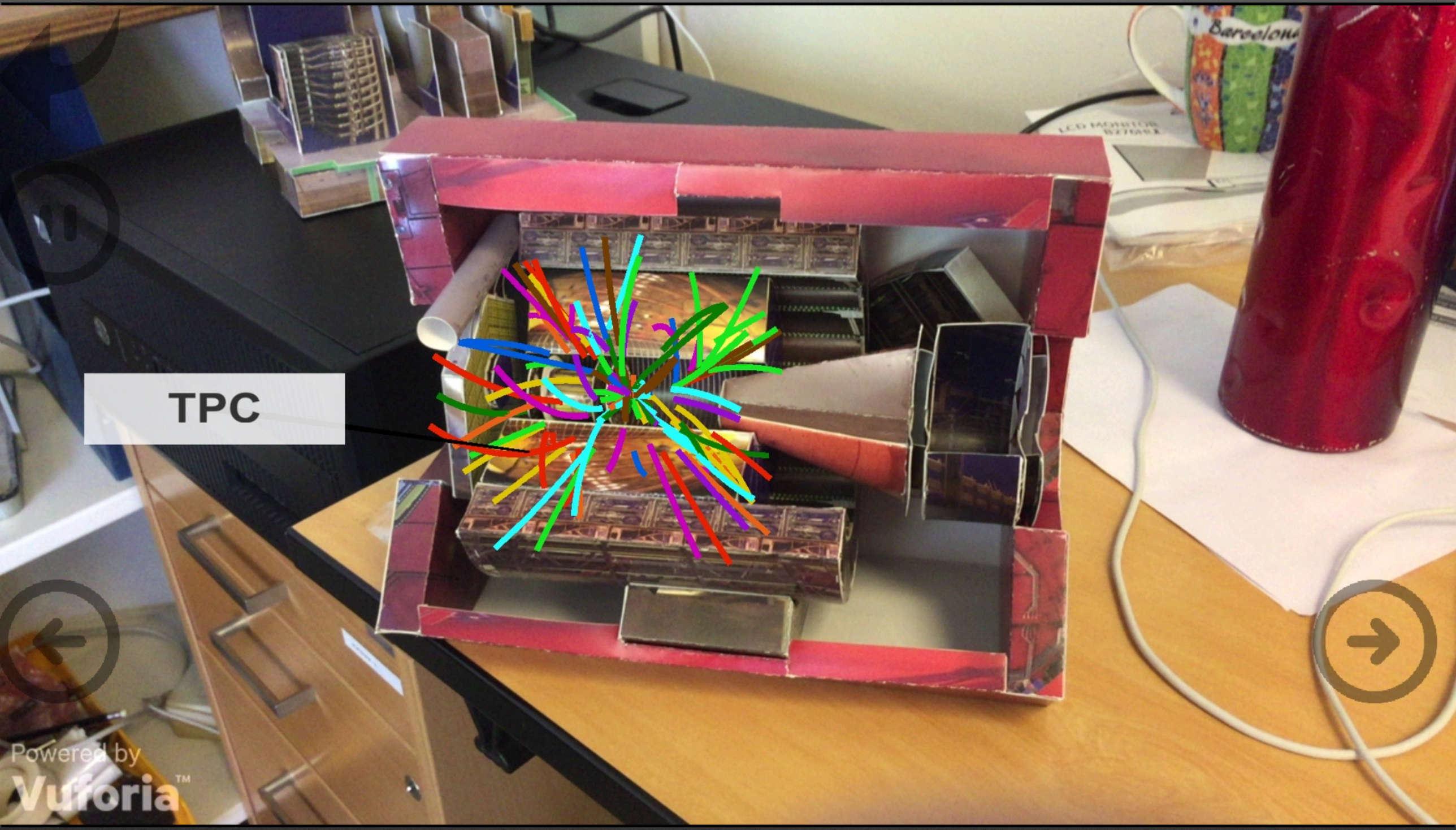

Previous Collision

Next Collision

# Augmented Reality Scene

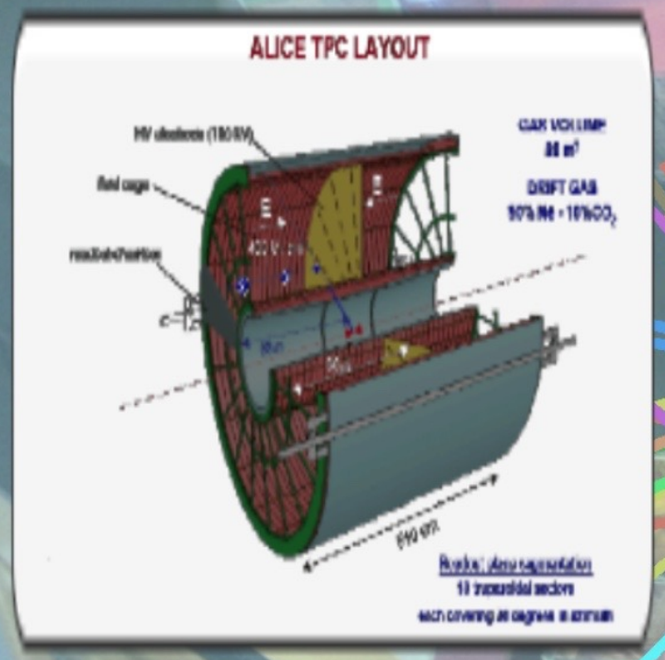


# Augmented Reality Scene



# Augmented Reality Scene

## TPC



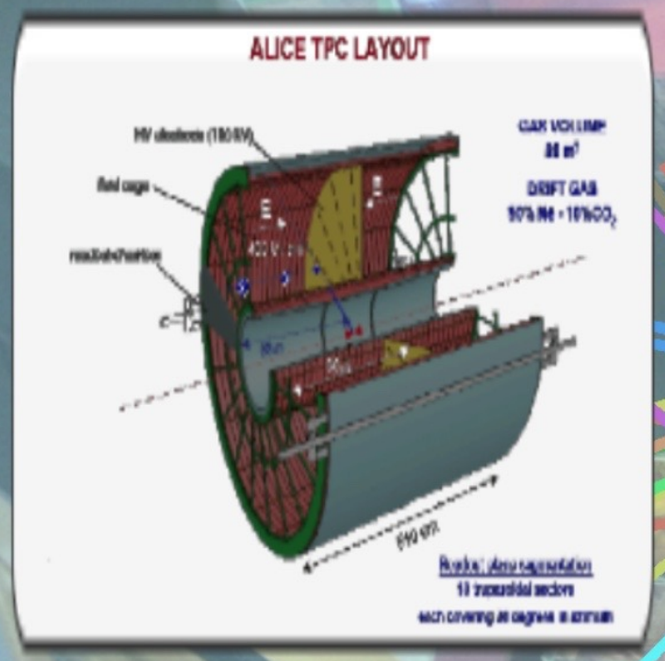
The ALICE Time Projection Chamber (TPC) is a large volume filled with a gaseous detection medium and is the primary particle tracking device in ALICE. As charged particles move through the

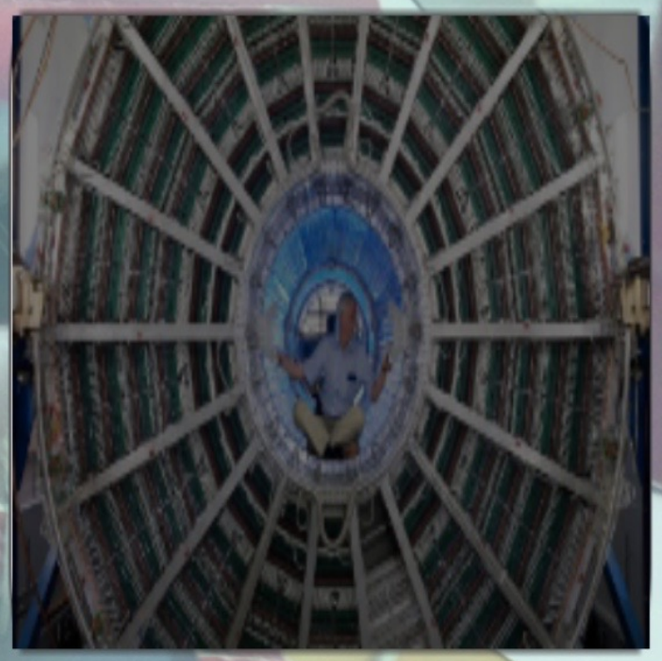
Powered by Vuforia

# Augmented Reality Scene

Interacting Images

TPC





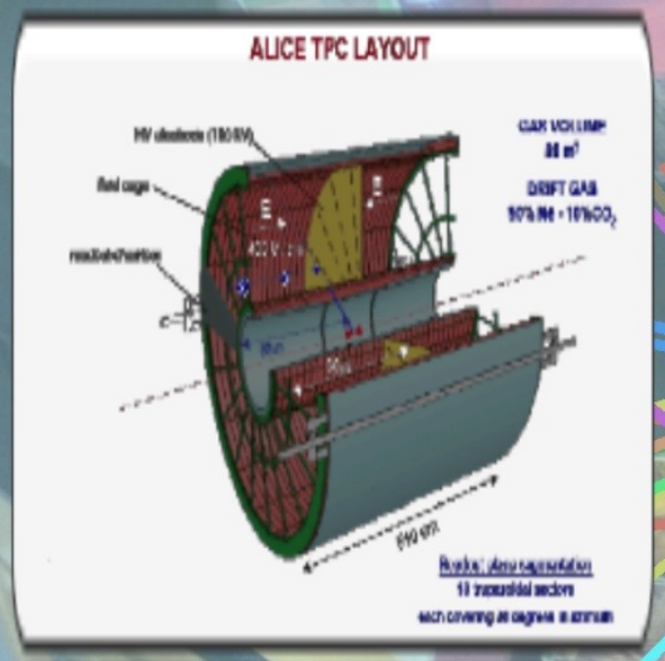
The ALICE Time Projection Chamber (TPC) is a large volume filled with a gaseous detection medium and is the primary particle tracking device in ALICE. As charged particles move through the

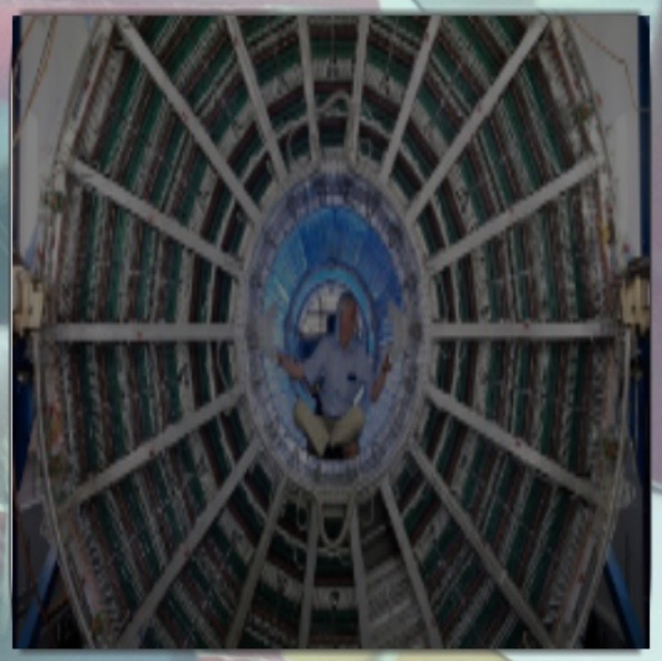
Powered by Vuforia

# Augmented Reality Scene

Interacting Images

TPC





The ALICE Time Projection Chamber (TPC) is a large volume filled with a gaseous detection medium and is the primary particle tracking device in ALICE. As charged particles move through the

Powered by Vuforia

Component Description

# Augmented Reality Scene

Current Trackable Components:

- DIMUON
- EMCAL
- PHOS
- TPC
- TRD
- TOF

Current Nontrackable Components:

- ACORDE
- HMPID
- ITS
- PMD
- SOLENOID
- VZERO

# Augmented Reality Scene

Current Trackable Components:

- DIMUON
- EMCAL
- PHOS
- TPC
- TRD
- TOF

Current Nontrackable Components:

- ACORDE
- HMPID
- ITS
- PMD
- SOLENOID
- VZERO

... a good place to start for subsequent versions!

# Project Structure

- Written in C# (31 scripts in total)
- Scenes directly assembled in Unity
- Improvement over v1.0: 31 vs. 335
  - 91% decrease!

# Before...

## Chapter 2

## Hierarchical Index

### 2.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:


Collision.Engine.BezierCurve
Collision.Engine.BezierPath
Collision.Data.ESD
Collision.Data.ESDTrack
Collision.Data.ESDTrackPoint
Collision.Engine.EventForVisualization
Menu.Behaviors.GenericMenuBehavior< MenuBehaviorType >
  Menu.Behaviors.MenuBehavior
Menu.General.GUICommon
  Menu.Components.GUIComponent
    Menu.Components.Button.Button
    Menu.Components.Grid.Grid
    Menu.Components.Image.Image
    Menu.Components.Panel.Panel
    Menu.Components.ScrollBar.ScrollBar
    Menu.Components.Text.Text
Common.Interfaces.IActiveFeatureProvidable
  Scenes.Common.SceneManager.SceneManager
Settings.Storage.IAssetsStorage
  Settings.Storage.AssetsStorage
Settings.Audio.IAudioController
  Settings.Audio.AudioController
Settings.Camera.ICameraController
  Settings.Camera.CameraController
Menu.General.IChangeLanguage
  Menu.Components.IGUIComponent
    Menu.Components.Button.IButton 151
      Menu.Components.Button.Button 71
    Menu.Components.Grid.IGrid 202
      Menu.Components.Grid.Grid 134
    Menu.Components.GUIComponent 138
    Menu.Components.Image.IImage 205
      Menu.Components.Image.Image 231
    Menu.Components.Panel.IPanel 278
      Menu.Components.Panel.Panel 316





Menu.Components.ScrollBar.IScrollBar 282
  Menu.Components.ScrollBar.ScrollBar 328
Menu.Components.Text.IText 289
  Menu.Components.Text.Text 341
Menu.General.IMenu 240
Menu.General.IMenuManager 247
  Menu.General.MenuManager 313
Scenes.Common.IChangeShader 157
  Scenes.Common.SceneManager.ISceneManager 281
    Scenes.Common.SceneManager.SceneManager 323
  Scenes.VR.Instance.Detectors.IDetector 183
    Scenes.VR.Instance.Detectors.Detector 102
      Scenes.VR.Instance.Detectors.ACORDE 57
      Scenes.VR.Instance.Detectors.DIMUON 120
      Scenes.VR.Instance.Detectors.EMCAL 125
      Scenes.VR.Instance.Detectors.HMPID 141
      Scenes.VR.Instance.Detectors.ITS 292
      Scenes.VR.Instance.Detectors.PHOS 318
      Scenes.VR.Instance.Detectors.PMD 319
      Scenes.VR.Instance.Detectors.SOLENOID 337
      Scenes.VR.Instance.Detectors.TOF 345
      Scenes.VR.Instance.Detectors.TPC 346
      Scenes.VR.Instance.Detectors.TRD 349
      Scenes.VR.Instance.Detectors.VZERO 360
  Scenes.VR.Instance.VRInstance 354
  Scenes.VR.Manager.IVRManager 299
    Scenes.VR.Manager.VRManager 356
Menu.General.IChangeSkin 158
  Menu.Components.IGUIComponent 203
  Menu.General.IMenu 240
  Menu.General.IMenuManager 247
Menu.EventArgs.Button.IChangeTextureEventArgs 158
  Menu.EventArgs.Button.Default.IButtonEventArgs 154
    Menu.EventArgs.Button.Default.ButtonEventArgs 74
Menu.Components.ChangeTextureFeature.IChangeTextureFeature 159
  Menu.Components.Button.IButton 151
Scenes.Common.IChangeVisibilityForGivenDetectorNotifier 160
  Scenes.VR.Instance.VRInstance 354
  Scenes.VR.Manager.IVRManager 299
  Scenes.VR.Scene.IVRScene 299
    Scenes.VR.Scene.VRScene 358
Scenes.Common.SceneManager.ICheci
  Scenes.Common.SceneManager.ISc
Menu.Behaviors.SlidePanel.ICollapseEx
  Menu.Behaviors.SlidePanel.Collapse
Collision.Controller.ICollisionController
  Collision.Controller.CollisionControlle
Collision.Data.ICollisionData
  Collision.Data.CollisionData
Collision.Engine.ICollisionEngine
  Collision.Engine.CollisionEngine
Collision.Behaviors.Handlers.ICollisionH
  Collision.Behaviors.Handlers.Collisic
Collision.Engine.ICollisionHelper





Collision.Engine.CollisionEngine
Collision.Behaviors.ICollisionVisibilityChangeNotifier
  Collision.General.ICollisionManager
    Collision.General.CollisionManager
      Scenes.Common.SceneManager.ISceneManager
Collision.Controller.ICollissionCallbacks
  Collision.Controller.CollisionController
Collision.Behaviors.ICollisionDetectionHelper
  Scenes.AR.Manager.IARManager
    Scenes.AR.Manager.ARManager
Scenes.Common.ICommonHandlers
  Scenes.VR.Instance.CameraPositionUpdateScript
  Scenes.VR.Instance.Detectors.IDetector
  Scenes.VR.Instance.DragMouseOrbit
  Scenes.VR.Instance.VRInstance
  Scenes.VR.Manager.IVRManager
Settings.General.IConfigurationController
  Settings.General.ConfigurationController
Settings.General.ICurrentConfiguration
  Settings.General.CurrentConfiguration
Menu.EventArgs.ICustomEventArgs
  Menu.EventArgs.CustomEventArgs
    Menu.EventArgs.Button.Default.ButtonEventArgs 74
    Menu.EventArgs.Button.TakePhoto.TakePhotoEventArgs 341
Scenes.AR.Trackables.ICustomTrackableEventHandler 179
  Scenes.AR.Trackables.CustomTrackableEventHandler 96
Settings.General.IDefaultsController 180
  Settings.General.DefaultsController 97
Detector.Behaviors.IDetectorDetectionHelper 185
  Scenes.AR.Manager.IARManager 145
Settings.Storage.IDetectorInfo 186
  Settings.Storage.DetectorInfo 106
Detector.Behaviors.Enablements.IDetectorListEnablementManager 187
  Detector.Behaviors.Enablements.DetectorListEnablementManager 107
Detector.General.IDetectorManagerStorable 189
  Detector.Behaviors.Handlers.IDetectionHandler 181
    Detector.Behaviors.Handlers.DetectionHandler 99
  Detector.General.IDetectorManager 188
    Detector.General.DetectorManager 109
Settings.Storage.IDetectorsInfoBuilder 191
  Settings.Storage.DetectorsInfoBuilder 113
Detector.Behaviors.IDetectorToMenuApi 191
  Detector.Behaviors.Visibilities.IDetectorVisibilityHelper 193
    Detector.Behaviors.Visibilities.DetectorVisibilityHelper 113
  Detector.General.IDetectorManager 188
  Scenes.Common.SceneManager.ISceneManager 281
Detector.Behaviors.IDetectorVisibilityChangeNotifier 192
  Detector.Behaviors.Handlers.IDetectionHandler 181
  Scenes.AR.Manager.IARManager 145
  Scenes.AR.Scene.IARScene 145
    Scenes.AR.Scene.ARScene 62
  Scenes.Common.SceneManager.ISceneManager 281
  Scenes.VR.Instance.VRInstance 354







Scenes.VR.Manager.IVRManager 299
Scenes.VR.Scene.IVRScene 299
Settings.Storage.IDimentions 195
  Settings.Storage.Dimentions 119
Scenes.Common.IDisabledDetectorsUsefulForRefreshButton 196
  Scenes.Common.SceneManager.SceneManager 323
  Scenes.VR.Instance.VRInstance 354
  Scenes.VR.Manager.IVRManager 299
  Scenes.VR.Scene.IVRScene 299
Settings.Display.IDisplayController 197
  Settings.Display.DisplayController 121
Common.Draw.IDrawable 198
  App.General.IApplicationManager 143
    App.General.ApplicationManager 59
  Detector.Containers.IInformationContainer 216
    Detector.Containers.InformationContainer 256
  Detector.Containers.IInformationItemContainer 218
    Detector.Containers.InformationItemContainer 261
  Menu.Components.IGUIComponent 203
  Menu.General.IMenu 240
  Menu.General.IMenuManager 247
Collision.Data.IEventData 199
  Collision.Data.EventData 127
Common.Features.IFeatureManager 200
  Collision.General.ICollisionManager 170
  Common.Features.FeatureManager 129
    Collision.General.CollisionManager 90
    Detector.General.DetectorManager 109
  Detector.General.IDetectorManager 188
Menu.Behaviors.IGenericMenuBehavior< T > 201
  Menu.Behaviors.GenericMenuBehavior< T > 131
Menu.Behaviors.IGenericMenuBehavior< MenuBehaviorType >
  Menu.Behaviors.IMenuBehavior
Menu.Behaviors.List.IGridBehavior
  Menu.Behaviors.List.GridBehavior
Scenes.AR.ImageTargets.Builders.IImageTargetImpor
  Scenes.AR.ImageTargets.Builders.ImageTargetIm
Scenes.AR.ImageTargets.Positions.IImageTargetNorn
  Scenes.AR.ImageTargets.Positions.Estimators.Ima
Scenes.AR.ImageTargets.Builders.IImageTargetPositi
  Scenes.AR.ImageTargets.Builders.ImageTargetPo
Scenes.AR.ImageTargets.Positions.Estimators.IImage
  Scenes.AR.ImageTargets.Positions.Estimators.Ima
Settings.Storage.IIndicatorsInfo
  Settings.Storage.IndicatorsInfo
Detector.Common.IInformation
  Detector.Common.Information
Detector.Animations.IInformationAnimationHelper
  Detector.Animations.InformationAnimationHelper
Detector.Behaviors.IInformationBehavior
  Detector.Behaviors.InformationBehavior
Detector.Common.IInformationCommon





Detector.Common.InformationCommon
  Detector.Containers.InformationContainer
  Detector.Containers.InformationItemContainer
Detector.Containers.IInformationDimensionsStorage
  Detector.Containers.InformationDimensionsStorage
Detector.EventArgs.IInformationEventArgs
Detector.Behaviors.IInformationEventResponsable
  Detector.Behaviors.InformationEventResponsable
Detector.Builders.IInformationHelper
  Detector.Builders.InformationHelper
Detector.Animations.IInformationMove
  Detector.Animations.InformationMove
Detector.General.IInformationPositioner
  Detector.General.InformationPositionerAR
  Detector.General.InformationPositionerVR
Detector.General.IInformationPositionerManager
  Detector.General.InformationPositionerManager
Settings.Language.ILanguageController
  Settings.Language.LanguageController
Settings.Layout.ILayoutController
  Settings.Layout.LayoutController
Scenes.AR.ImageTargets.Managers.ImagesTargetsManager 233
Scenes.Common.Abstracts.Manager.IManager 239
  Scenes.Common.Abstracts.Manager.Manager 303
    Scenes.AR.Manager.ARManager 60
    Scenes.VR.Manager.VRManager 356
Menu.Behaviors.IMenuEventResponsable< T > 242
Settings.Storage.IMenuInfo 243
  Settings.Storage.MenuInfo 306
Settings.Storage.IMenuItemInfo 246
  Settings.Storage.MenuItemInfo 310
Settings.Storage.IMenusInfoBuilder 249
  Settings.Storage.MenusInfoBuilder 315
Common.Draw.IProceduralColorCreator 279
  Common.Draw.ProceduralColorCreator 320
Common.Interfaces.IRotationManager 279
  Scenes.VR.Instance.DragMouseOrbit 123
  Scenes.VR.Instance.RotationManager 321
Scenes.Common.Abstracts.Scene.IScene 280
  Scenes.AR.Scene.IARScene 145
  Scenes.Common.Abstracts.Scene.Scene 322
    Scenes.AR.Scene.ARScene 62
    Scenes.VR.Scene.VRScene 358
  Scenes.VR.Scene.IVRScene 299
Settings.General.ISettingsManager 283
  Settings.General.SettingsManager 330
Menu.Behaviors.Main.ISlideMenuSettings 284
  Menu.Behaviors.Main.SlideMenuSettings 332
Menu.Behaviors.SlidePanel.ISlidePanelBehavior 286
  Menu.Behaviors.SlidePanel.SlidePanelBehavior 334
Menu.EventArgs.Button.Sound.ISoundEventArgs 288
Menu.Behaviors.Gallery.ITakePhotoBehavior 288







Menu.Behaviors.Gallery.TakePhotoBehavior 340
Menu.EventArgs.Button.TakePhoto.ITakePhotoEventArgs 289
  Menu.EventArgs.Button.TakePhoto.TakePhotoEventArgs 341
Common.TextFormat.ITextFormat 289
  Common.TextFormat.TextFormat 342
Settings.Storage.ITextures 291
  Settings.Storage.Textures 344
Collision.Data.ITrackData 291
  Collision.Data.TrackData 348
ITrackerEventHandler
  App.General.StartApplication 338
Collision.Engine.ITubeRenderer 293
  Collision.Engine.TubeRenderer 351
Settings.Storage.IUsefulLink 295
  Settings.Storage.UsefulLink 353
Collision.Behaviors.IVRCollisionApi 296
  Collision.General.ICollisionManager 170
Detector.Behaviors.IVRDetectorEnablementList 298
  Detector.Behaviors.IVRDetectorApi 296
    Detector.Behaviors.Handlers.IDetectorVRHandler 195
      Detector.Behaviors.Handlers.DetectorVRHandler 116
  Detector.Behaviors.Visibilities.IDetectorVisibilityHelper 193
MonoBehaviour
  App.General.StartApplication 338
  Collision.Behaviors.Handlers.CollisionHandler 89
  Collision.Engine.TubeRenderer 351
  Common.UnityUI.StretchImageBehavior 339
  Detector.Animations.InformationMove 262
  Detector.Behaviors.Handlers.DetectionHandler 99
  Detector.Behaviors.LinkHelper 302
  Menu.Behaviors.Gallery.TakePhotoBehavior 340
  Menu.Behaviors.List.GridBehavior 136
  Menu.Behaviors.Main.SlideMenuSettings 332
  Menu.Behaviors.SlidePanel.CollapseExpandMenuBehavior 79
  Menu.Behaviors.SlidePanel.SlidePanelBehavior 334
  Scenes.VR.Instance.CameraPositionUpdateScript 78
  Scenes.VR.Instance.DragMouseOrbit 123
Detector.General.PathInformation 318
Menu.Behaviors.SlidePanel.SlidePanelBehavior.SlidedPanel 331
Collision.Engine.TrackForVisualization 349
Collision.Engine.TubeRenderer.TubeVertex 352

# … and after

## MoreThanALICE v2.0

MoreThanALICE is an augmented reality mobile application written in the Unity Engine. This documentation covers the scripts written in C#.

Main Page | Namespaces | Classes | Search

Class List | Class Index | Class Hierarchy | Class Members

- MoreThanALICE
  - Namespaces
  - Classes
    - Class List
    - Class Index
    - Class Hierarchy
    - Class Members

### Class Index

A | B | C | D | E | I | L | M | N | S | T | V

**A**

ARButtonManager (Scenes.AR.Buttons)
ARCollisionManager (Managers.Collisions)
ARImageController (Scenes.AR.Targets)
ARManager (Managers.Scenes)
ARObjectController (Scenes.AR.Targets)
ARTargetController (Scenes.AR.Targets)

**B**

ButtonController (Controllers.Buttons)
ButtonLocation (Common.Buttons)
ButtonManager (Managers.Buttons)

**C**

CollisionData (Collision.Data)
CollisionManager (Managers.Collisions)

**D**

DetectorDescriptionPanelController (Detectors.Descriptions)
DetectorImageController (Detectors.Images)

**E**

ESD (Collision.Data)
ESDTrack (Collision.Data)
ESDTrackPoint (Collision.Data)
EventData (Collision.Data)

**I**

ICollisionData (Collision.Data)
IEventData (Collision.Data)
InvalidButtonException (Managers.Buttons)
IToggleable (Common)
ITrackData (Collision.Data)

**L**

LinkHandler (Common)

**M**

MainMenuDetectorController (Scenes.MainMenu.Detectors)

**N**

NoComponentFoundException (Managers.Buttons)
NullEventException (Collision.Data)

**S**

SceneManager (Managers.Scenes)
SceneSelector (Common.Scenes)

**T**

TrackData (Collision.Data)
TrackLineRendererController (Collision.Plotting)

**V**

ViewUIController (Scenes.Common)
VRButtonManager (Scenes.VR.Buttons)
VRDetectorComponent (Scenes.VR.Detectors)
VRDetectorController (Scenes.VR.Detectors)
VRManager (Managers.Scenes)

A | B | C | D | E | I | L | M | N | S | T | V

# … and after

# MoreThanALICE v2.0

MoreThanALICE is an augmented reality mobile application written in the Unity Engine. This documentation covers the scripts written in C#.

Main Page | Namespaces | Classes | Search

Namespace List | Namespace Members

- MoreThanALICE
  - Namespaces
    - Namespace List
    - Namespace Members
  - Classes

## Namespace List

Here is a list of all documented namespaces with brief descriptions:

[detail level 1 2 3]

- N Collision
- N Common
- N Controllers
- N Detectors
- N Managers
- N Scenes
  - N AR
    - N Common
  - N MainMenu
  - N VR

file:///Users/jeffouellette/CERN/alice-ar-app/v2/Documentation/html/namespacemembers.html

Generated by doxygen 1.8.11

# … and after

# MoreThanALICE v2.0

MoreThanALICE is an augmented reality mobile application written in the Unity Engine. This documentation covers the scripts written in C#.

Main Page | Namespaces | Classes | Search

Namespace List | Namespace Members

- MoreThanALICE
  - Namespaces
    - Namespace List
    - Namespace Members
  - Classes

## Namespace List

Here is a list of all documented namespaces with brief descriptions:

[detail level 1 2 3]

- Collision ← for gathering and plotting collision data
- Common
- Controllers
- Detectors
- Managers
- Scenes
  - AR
  - Common
  - MainMenu
  - VR

file:///Users/jeffouellette/CERN/alice-ar-app/v2/Documentation/html/namespacemembers.html

Generated by doxygen 1.8.11

# … and after

# MoreThanALICE v2.0

MoreThanALICE is an augmented reality mobile application written in the Unity Engine. This documentation covers the scripts written in C#.

Main Page | Namespaces | Classes | Search

Namespace List | Namespace Members

- MoreThanALICE
  - Namespaces
    - Namespace List
    - Namespace Members
  - Classes

## Namespace List

Here is a list of all documented namespaces with brief descriptions: [detail level 1 2 3]

- N Collision
- N Common ← for structures common to multiple scenes
- N Controllers
- N Detectors
- N Managers
- N Scenes
  - N AR
    - N Common
  - N MainMenu
  - N VR

file:///Users/jeffouellette/CERN/alice-ar-app/v2/Documentation/html/namespacemembers.html

Generated by doxygen 1.8.11

# … and after

# MoreThanALICE v2.0

MoreThanALICE is an augmented reality mobile application written in the Unity Engine. This documentation covers the scripts written in C#.

Main Page | Namespaces | Classes | Search

Namespace List | Namespace Members

- MoreThanALICE
  - Namespaces
    - Namespace List
    - Namespace Members
  - Classes

## Namespace List

Here is a list of all documented namespaces with brief descriptions: [detail level 1 2 3]

- N Collision
- N Common
- N Controllers ← for classes controlling a single object
- N Detectors
- N Managers
- N Scenes
  - N AR
    - N Common
  - N MainMenu
  - N VR

file:///Users/jeffouellette/CERN/alice-ar-app/v2/Documentation/html/namespacemembers.html

Generated by doxygen 1.8.11

# … and after

# MoreThanALICE v2.0

MoreThanALICE is an augmented reality mobile application written in the Unity Engine. This documentation covers the scripts written in C#.

Main Page | Namespaces | Classes | Search

Namespace List | Namespace Members

- MoreThanALICE
  - Namespaces
    - Namespace List
    - Namespace Members
  - Classes

## Namespace List

Here is a list of all documented namespaces with brief descriptions: [detail level 1 2 3]

- N Collision
- N Common
- N Controllers
- N Detectors ← for classes with detector information
- N Managers
- N Scenes
  - N AR
    - N Common
  - N MainMenu
  - N VR

file:///Users/jeffouellette/CERN/alice-ar-app/v2/Documentation/html/namespacemembers.html

Generated by doxygen 1.8.11

# … and after

# MoreThanALICE v2.0

MoreThanALICE is an augmented reality mobile application written in the Unity Engine. This documentation covers the scripts written in C#.

Main Page | Namespaces | Classes | Search

Namespace List | Namespace Members

- MoreThanALICE
  - Namespaces
    - Namespace List
    - Namespace Members
  - Classes

## Namespace List

Here is a list of all documented namespaces with brief descriptions: [detail level 1 2 3]

- N Collision
- N Common
- N Controllers
- N Detectors
- N Managers
- N Scenes
  - N AR
    - N Common
  - N MainMenu
  - N VR

← for classes controlling many objects

file:///Users/jeffouellette/CERN/alice-ar-app/v2/Documentation/html/namespacemembers.html

Generated by doxygen 1.8.11

# … and after

# MoreThanALICE v2.0

MoreThanALICE is an augmented reality mobile application written in the Unity Engine. This documentation covers the scripts written in C#.

Main Page | Namespaces | Classes | Search

Namespace List | Namespace Members

- MoreThanALICE
  - Namespaces
    - Namespace List
    - Namespace Members
  - Classes

## Namespace List

Here is a list of all documented namespaces with brief descriptions: [detail level 1 2 3]

- N Collision
- N Common
- N Controllers
- N Detectors
- N Managers
- N Scenes ← for classes controlling scene behaviour
  - N AR
    - N Common
  - N MainMenu
  - N VR

file:///Users/jeffouellette/CERN/alice-ar-app/v2/Documentation/html/namespacemembers.html

Generated by doxygen 1.8.11

# Work still to be done

# Work still to be done

Add more features!

# Work still to be done

Add more features!

Background Music and Sounds

# Work still to be done

Add more features!

Background Music and Sounds

Multiple Language Framework

# Work still to be done

Add more features!

Background Music and Sounds

Multiple Language Framework

Acquire higher quality object scans

# Work still to be done

Add more features!

Background Music and Sounds

Multiple Language Framework

Acquire higher quality object scans

Connect collisions to the web application

# Special Thanks

- To the National Science Foundation, for providing funding for the opportunity to work at CERN,

# Special Thanks


- To the National Science Foundation, for providing funding for the opportunity to work at CERN,

- To the University of Michigan REU program and the CERN summer student program,

# Special Thanks


- To the National Science Foundation, for providing funding for the opportunity to work at CERN,

- To the University of Michigan REU program and the CERN summer student program,

- … and to Reid Pinkham, for letting me borrow your phone late at night when you just wanted to go to sleep

# Prague!

# Prague!

# Prague!