Podstawy grafiki komputerowej

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Chapter 1

Readme

1.1 compiling

```
mkdir build
cd build
cmake ..
# replace 4 with number of cores for compiling
make -j 4
```

1.2 Developer documentation

- During compilation doxygen generates in `doc_doxygen` subdirectory in cmake build directory.

1.3 Wymagania do silnika 2D

- Obsługa klawiatury i myszy
- Obsługa współrzędnych (Point2D)
- Rysowanie prymitywów
- Wypełnianie prymitywów kolorem
- Przekształcenia geometryczne
- Hierarchia klas
- Obsługa bitmap
- Animowanie bitmap
- Demo technologiczne (do obrony)
- Sprawozdanie i dokumentacja

Chapter 2

Deprecated List

File lineSegment.cpp

Bad design. Reinventing wheel.

File lineSegment.hpp

Bad design. Reinventing wheel.

Chapter 3

Namespace Index

3.1 Namespace List

Here is a list of all namespaces with brief descriptions:

Chapter 4

Hierarchical Index

4.1 Class Hierarchy

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

Chapter 5

Class Index

5.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 6

File Index

6.1 File List

Here is a list of all files with brief descriptions:

Chapter 7

Namespace Documentation

7.1 G Namespace Reference

Variables

- std::ostream & logstream {std::cerr}
- std::vector< Engine::Shape * > drwables {}
- bool moveVertically {false}
- std::string basePath = "resources/"

7.1.1 Variable Documentation

7.1.1.1 basePath

```
std::string G::basePath = "resources/"
```

Definition at line 7 of file test3/main.cpp.

7.1.1.2 drwables

```
std::vector<Engine::Shape *> G::drwables {}
```

Definition at line 12 of file test/main.cpp.
```
00012 {};
```

Referenced by addSomeRenderables(), and customLoopFunction().

7.1.1.3 logstream

```
std::ostream & G::logstream {std::cerr}
```

Definition at line 7 of file log.cpp.
```
00007 {std::cerr};
```

7.1.1.4 moveVertically

```
bool G::moveVertically {false}
```

Definition at line 13 of file test/main.cpp.
```
00013 {false};
```

Referenced by customLoopFunction(), and setUpCustomEvents().

7.2 obstacle Namespace Reference

Classes

- class LineSegment

Chapter 8

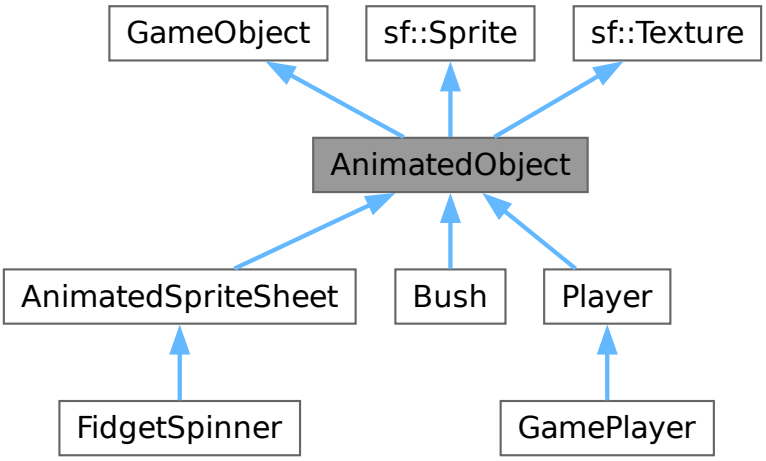
Class Documentation

8.1 AnimatedObject Class Reference

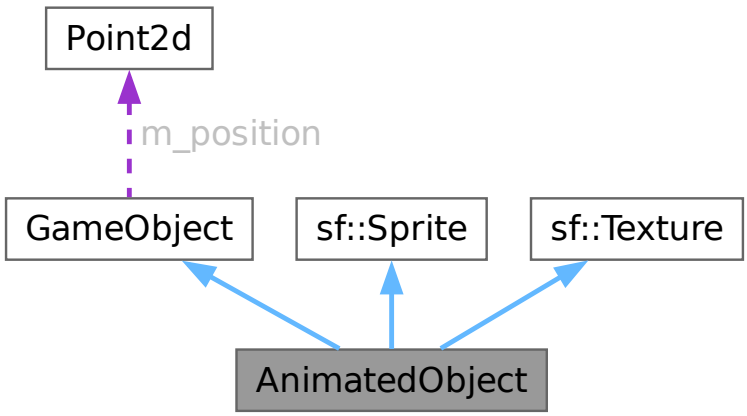
Animated object class.

`#include <animatedObject.hpp>`

Inheritance diagram for AnimatedObject:



Collaboration diagram for AnimatedObject:



Public Member Functions

- virtual ~AnimatedObject ()
  Destructor.
- virtual void setPosition (Point2d pos)
  Object position setter.
- virtual void animate ()
  Animates object.
- virtual void move (Point2d vec)
  Translates object in space.
- virtual Point2d getPosition () const
  Object position getter.

Private Attributes

- Point2d m_position {}
  Position of object on screen.

8.1.1 Detailed Description

Animated object class.

Definition at line 13 of file animatedObject.hpp.

8.1.2 Constructor & Destructor Documentation

8.1.2.1 ~AnimatedObject()

```
virtual AnimatedObject::~AnimatedObject ( )  [inline], [virtual]
```

Destructor.

Definition at line 21 of file animatedObject.hpp.
```
00021 {};
```

8.1.3 Member Function Documentation

8.1.3.1 animate()

```
void AnimatedObject::animate ( )  [virtual]
```

Animates object.

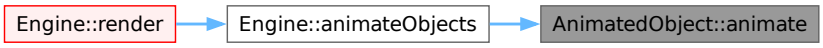
Reimplemented in Bush, AnimatedSpriteSheet, FidgetSpinner, and GamePlayer.

Definition at line 5 of file animatedObject.cpp.
```
00005                                {
00006   LOGWARN « "Not overloaded " « this « '\n';
00007 };
```

References LOGWARN.

Referenced by Engine::animateObjects().

Here is the caller graph for this function:



8.1.3.2 getPosition()

```
Point2d GameObject::getPosition ( ) const  [virtual], [inherited]
```

Object position getter.

Definition at line 7 of file GameObject.cpp.
```
00007 { return m_position; }
```

References GameObject::m_position.

8.1.3.3 move()

```
void AnimatedObject::move (
            Point2d vector )  [virtual]
```

Translates object in space.

Parameters

vector	2D vector added to current object position.

Reimplemented from GameObject.

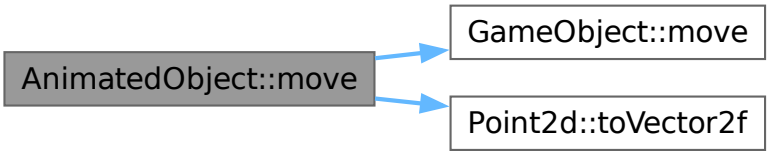
Reimplemented in Player.

Definition at line 14 of file animatedObject.cpp.

```
00014                                          {
00015     GameObject::move(vec);
00016     sf::Sprite::move(vec.toVector2f());
00017     // LOGINFO « GameObject::getPosition() « '\n';
00018 };
```

References GameObject::move(), and Point2d::toVector2f().

Here is the call graph for this function:



8.1.3.4 setPosition()

```
void AnimatedObject::setPosition (
            Point2d pos )  [virtual]
```

Object position setter.

Parameters

pos	Position to be set.

Reimplemented from GameObject.

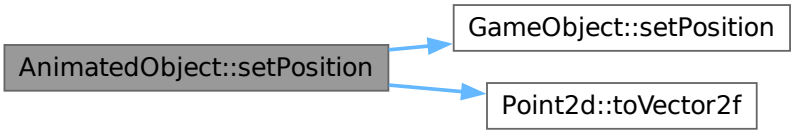
Definition at line 9 of file animatedObject.cpp.

```
00009                                              {
00010     GameObject::setPosition(pos);
00011     sf::Sprite::setPosition(pos.toVector2f());
00012 };
```

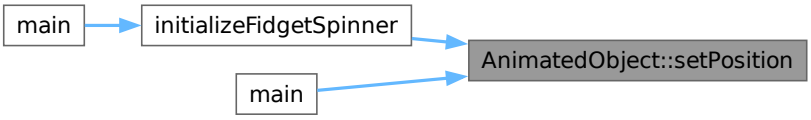
References GameObject::setPosition(), and Point2d::toVector2f().

Referenced by initializeFidgetSpinner(), and main().

Here is the call graph for this function:



Here is the caller graph for this function:



8.1.4 Member Data Documentation

8.1.4.1 m_position

```
Point2d GameObject::m_position {}  [private], [inherited]
```

Position of object on screen.

Definition at line 14 of file GameObject.hpp.

```
00014 {};
```

Referenced by GameObject::getPosition(), GameObject::move(), and GameObject::setPosition().

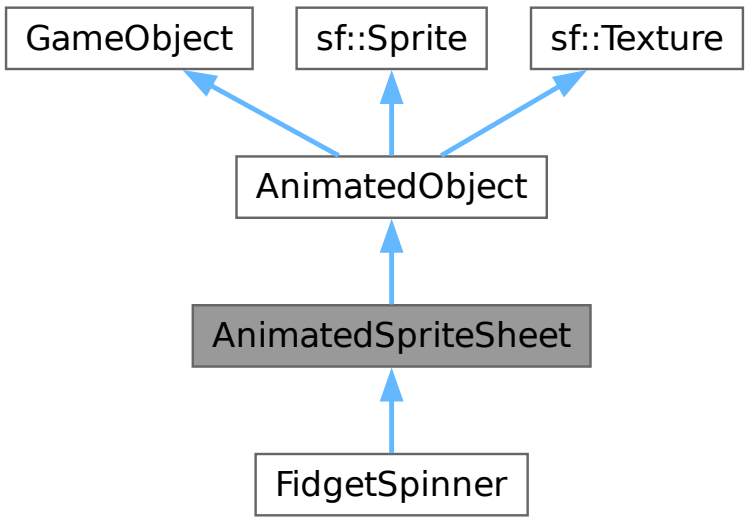
The documentation for this class was generated from the following files:

- animatedObject.hpp
- animatedObject.cpp

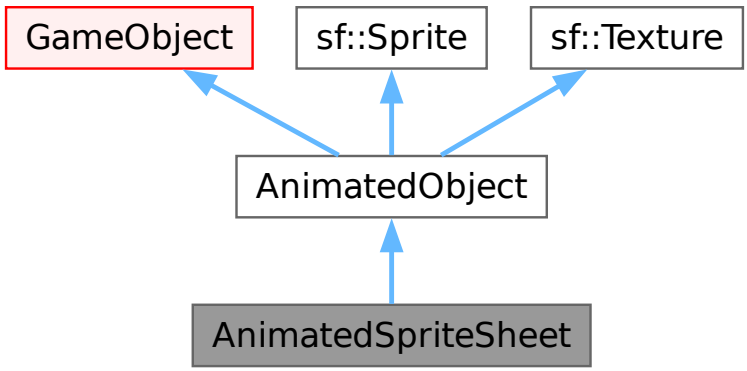
8.2 AnimatedSpriteSheet Class Reference

```
#include <animatedSpriteSheet.hpp>
```

Inheritance diagram for AnimatedSpriteSheet:



Collaboration diagram for AnimatedSpriteSheet:



Classes

- struct AnimationFrameData

Public Types

- using animationData_t = std::vector< AnimationFrameData >

Public Member Functions

- AnimatedSpriteSheet (std::string_view path)
- virtual void animate () override

  Animates object.
- virtual void setPosition (Point2d pos)

  Object position setter.
- virtual void move (Point2d vec)

  Translates object in space.
- virtual Point2d getPosition () const

  Object position getter.

Protected Member Functions

- int getCurrentAnimationFrameCount () const
- sf::IntRect getCurrentAnimationFrameRect () const
- float getCurrentAnimationFrameDuration () const
- const AnimationFrameData & getCurrentAnimationFrameData () const
- void nextFrame ()
- void setFrame (const AnimationFrameData &frameData)
- void loadFrame (std::istream &stream, animationData_t &animationData)

  load frame data from stream
- void loadSpritesheet (std::istream &stream, std::string_view configFileDirectoryPath)
- void loadFromConfigFile (std::string_view pathToDir)

Private Attributes

- std::vector< animationData_t > m_animationsData
- int m_currentAnimationTypeIndex
- int m_currentFrameId {}
- float m_animationTimer {}
- Point2d m_position {}

  Position of object on screen.

8.2.1 Detailed Description

Definition at line 8 of file animatedSpriteSheet.hpp.

8.2.2 Member Typedef Documentation

8.2.2.1 animationData_t

```
using AnimatedSpriteSheet::animationData_t = std::vector<AnimationFrameData>
```

Definition at line 24 of file animatedSpriteSheet.hpp.

8.2.3 Constructor & Destructor Documentation

8.2.3.1 AnimatedSpriteSheet()

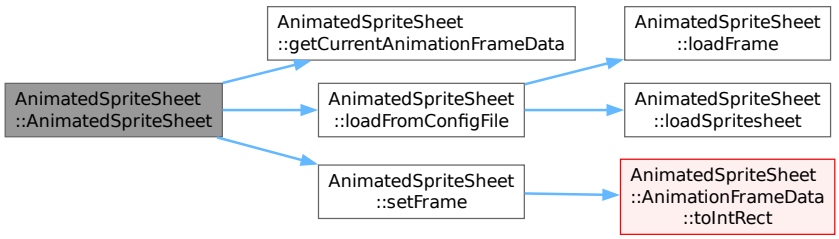
```
AnimatedSpriteSheet::AnimatedSpriteSheet (
            std::string_view path )
```

Definition at line 27 of file animatedSpriteSheet.cpp.

```
00027                                                                {
00028   std::string pathh{std::string(path) + "/spritesheet.png"};
00029   LOGINFO « pathh « '\n';
00030   loadFromConfigFile(path);
00031
00032   setTexture(*this);
00033   setFrame(getCurrentAnimationFrameData());
00034   // setFrame(getCurrentAnimationFrameData());
00035 };
```

References getCurrentAnimationFrameData(), loadFromConfigFile(), LOGINFO, and setFrame().

Here is the call graph for this function:



8.2.4 Member Function Documentation

8.2.4.1 animate()

```
void AnimatedSpriteSheet::animate ( )  [override], [virtual]
```

Animates object.

Reimplemented from AnimatedObject.

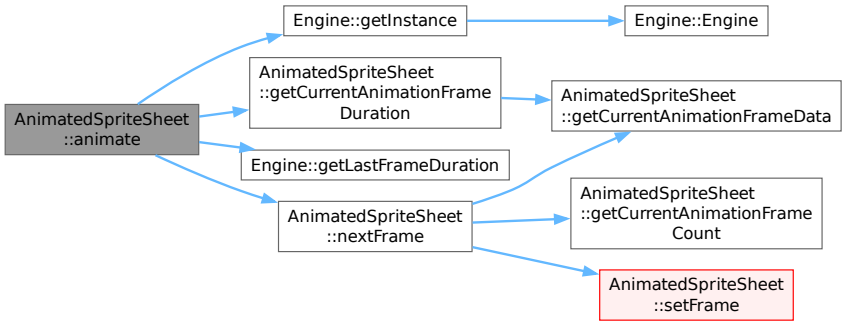
Reimplemented in FidgetSpinner.

Definition at line 37 of file animatedSpriteSheet.cpp.

```
00037                                  {
00038   LOGTRACEN;
00039   m_animationTimer += Engine::getInstance().getLastFrameDuration().asSeconds();
00040   // if duration of frame not exhaused do nothing;
00041   if (m_animationTimer < getCurrentAnimationFrameDuration())
00042     return;
00043   nextFrame();
00044 }
```

References getCurrentAnimationFrameDuration(), Engine::getInstance(), Engine::getLastFrameDuration(), LOGTRACEN, m_animationTimer, and nextFrame().

Here is the call graph for this function:



8.2.4.2 getCurrentAnimationFrameCount()

```
int AnimatedSpriteSheet::getCurrentAnimationFrameCount ( ) const  [protected]
```

Definition at line 54 of file animatedSpriteSheet.cpp.

```
00054                                                          {
00055   LOGTRACEN;
00056   return m_animationsData[m_currentAnimationTypeIndex].size();
00057 }
```

References LOGTRACEN, m_animationsData, and m_currentAnimationTypeIndex.

Referenced by nextFrame().

Here is the caller graph for this function:

8.2.4.3 getCurrentAnimationFrameData()

```
const AnimatedSpriteSheet::AnimationFrameData & AnimatedSpriteSheet::getCurrentAnimation↩
FrameData ( ) const  [protected]
```

Definition at line 60 of file animatedSpriteSheet.cpp.

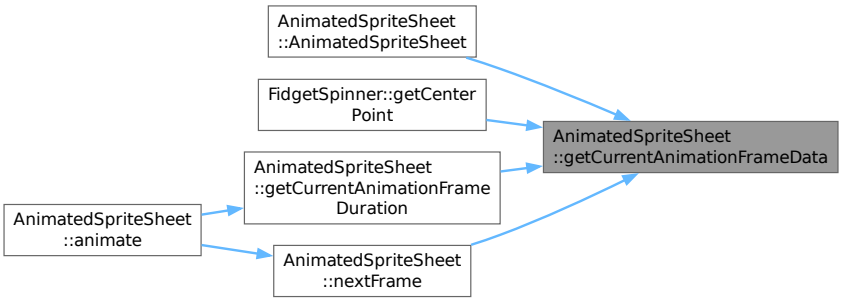
```
00060                                                          {
00061   LOGTRACEN;
00062   if (m_animationsData.size() == 0 ||
00063       m_animationsData.size() < m_currentAnimationTypeIndex) {
00064     LOGWARN « "No animation data\n";
00065   } else if (m_animationsData[m_currentAnimationTypeIndex].size() == 0 ||
00066              m_animationsData[m_currentAnimationTypeIndex].size() <
00067                  m_currentAnimationTypeIndex) {
00068     LOGWARN « "No frame data in animation " « m_currentAnimationTypeIndex
00069             « '\n';
00070   }
00071   return m_animationsData[m_currentAnimationTypeIndex][m_currentFrameId];
```

```
00072 }
```

References LOGTRACEN, LOGWARN, m_animationsData, m_currentAnimationTypeIndex, and m_currentFrameId.

Referenced by AnimatedSpriteSheet(), FidgetSpinner::getCenterPoint(), getCurrentAnimationFrameDuration(), and nextFrame().

Here is the caller graph for this function:



8.2.4.4 getCurrentAnimationFrameDuration()

```
float AnimatedSpriteSheet::getCurrentAnimationFrameDuration ( ) const  [protected]
```

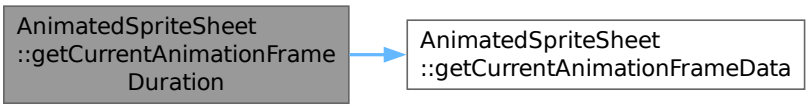
Definition at line 74 of file animatedSpriteSheet.cpp.

```
00074                                                                {
00075   LOGTRACEN;
00076   return getCurrentAnimationFrameData().m_duration;
00077 };
```

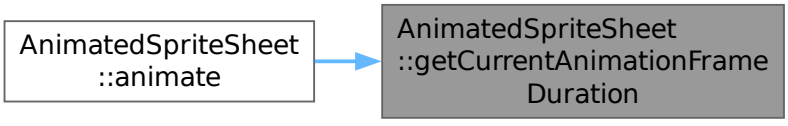
References getCurrentAnimationFrameData(), LOGTRACEN, and AnimatedSpriteSheet::AnimationFrameData::m_duration.

Referenced by animate().

Here is the call graph for this function:



Here is the caller graph for this function:



8.2.4.5 getCurrentAnimationFrameRect()

```
sf::IntRect AnimatedSpriteSheet::getCurrentAnimationFrameRect ( ) const  [protected]
```

8.2.4.6 getPosition()

```
Point2d GameObject::getPosition ( ) const  [virtual], [inherited]
```

Object position getter.

Definition at line 7 of file GameObject.cpp.

```
00007 { return m_position; }
```

References GameObject::m_position.

8.2.4.7 loadFrame()

```
void AnimatedSpriteSheet::loadFrame (
            std::istream & stream,
            animationData_t & animationData )  [protected]
```

load frame data from stream

Definition at line 85 of file animatedSpriteSheet.cpp.

```
00086                                                                    {
00087   LOGTRACEN;
00088   // load Frame data
00089   AnimationFrameData fdat{};
00090   stream » fdat;
00091   // LOGINFO « fdat.m_position « " " « fdat.m_size « " " «
00092   // fdat.m_duration
00093   //         « '\n';
00094
00095   // add frame data to animation
00096   animationData.push_back(fdat);
00097   stream.ignore(std::numeric_limits<std::streamsize>::max(), '\n');
00098 };
```

References LOGTRACEN.

Referenced by loadFromConfigFile().

Here is the caller graph for this function:

8.2.4.8 loadFromConfigFile()

```
void AnimatedSpriteSheet::loadFromConfigFile (
            std::string_view pathToDir )  [protected]
```

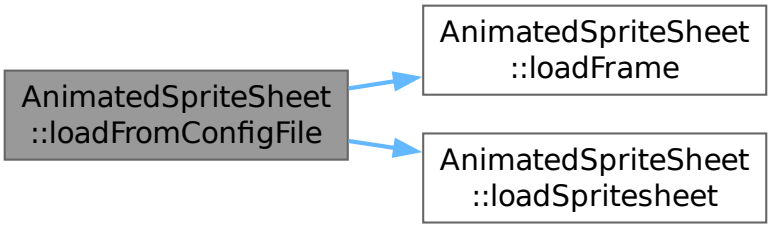
Definition at line 113 of file animatedSpriteSheet.cpp.

```
00113                                                                    {
00114   std::string configFilePath{static_cast<std::string>(pathToDir) +
00115                              "/config.txt"};
00116   // open file
00117   std::fstream configFile{configFilePath};
00118   if (!configFile.is_open()) {
00119     LOGERROR « "opening config file failed it should be at " « configFilePath
00120              « "\n";
00121     return;
00122   }
00123
00124   animationData_t *animationDataBeingLoaded{NULL};
00125   std::string line{};
00126
00127   while (!configFile.eof()) {
00128     line = "";
00129     // load line, ignore lines that are commnets
00130     do {
00131       std::getline(configFile, line);
00132     } while (line.starts_with("#"));
00133
00134     // load spritesheet
00135     if (line.starts_with("SPRITESHEET")) {
00136       loadSpritesheet(configFile, pathToDir);
00137     } else if (line.starts_with("ANIMATION")) {
00138       // Add new animation and change pointer
00139       //     LOGINFO « "loading animation data\n";
00140       m_animationsData.push_back({});
00141       animationDataBeingLoaded = {&m_animationsData.back()};
00142     }
00143     // load frame
00144     else if (line.starts_with("FRAME")) {
00145       if (animationDataBeingLoaded == NULL)
00146         LOGERROR « "config file is corrupted, FRAME before ANIMATION?";
00147       loadFrame(configFile, *animationDataBeingLoaded);
00148     }
00149     // not known
00150     else {
00151       // empty line ignore
00152       if (line == "") {
00153         continue;
00154       }
00155       // invalid line
00156       LOGWARN « "not recegnized config option: " « line
00157               « " in file: " « configFilePath « '\n';
00158     }
00159   }
00160   // close file
00161   configFile.close();
00162 }
```

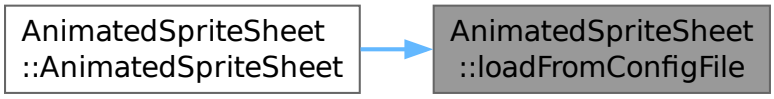
References loadFrame(), loadSpritesheet(), LOGERROR, LOGWARN, and m_animationsData.

Referenced by AnimatedSpriteSheet().

Here is the call graph for this function:



Here is the caller graph for this function:



8.2.4.9 loadSpritesheet()

```
void AnimatedSpriteSheet::loadSpritesheet (
            std::istream & stream,
            std::string_view configFileDirectoryPath )  [protected]
```

Definition at line 100 of file animatedSpriteSheet.cpp.

```
00101                                                                   {
00102   LOGINFO « "loading spritesheet data\n";
00103   std::string spriteSheetRelPath{};
00104   stream » spriteSheetRelPath;
00105   spriteSheetRelPath =
00106       std::string(configFileDirectoryPath) + "/" + spriteSheetRelPath;
00107
00108   loadFromFile(spriteSheetRelPath);
00109
00110   stream.ignore(std::numeric_limits<std::streamsize>::max(), '\n');
00111 }
```

References LOGINFO.

Referenced by loadFromConfigFile().

Here is the caller graph for this function:

8.2.4.10 move()

```
void AnimatedObject::move (
            Point2d vector )  [virtual], [inherited]
```

Translates object in space.

Parameters

vector	2D vector added to current object position.

Reimplemented from GameObject.

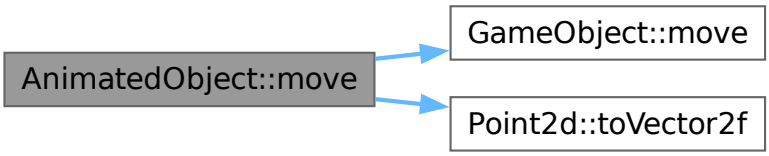
Reimplemented in Player.

Definition at line 14 of file animatedObject.cpp.

```
00014                                       {
00015     GameObject::move(vec);
00016     sf::Sprite::move(vec.toVector2f());
00017     // LOGINFO « GameObject::getPosition() « '\n';
00018 };
```

References GameObject::move(), and Point2d::toVector2f().

Here is the call graph for this function:



8.2.4.11 nextFrame()

```
void AnimatedSpriteSheet::nextFrame ( )  [protected]
```

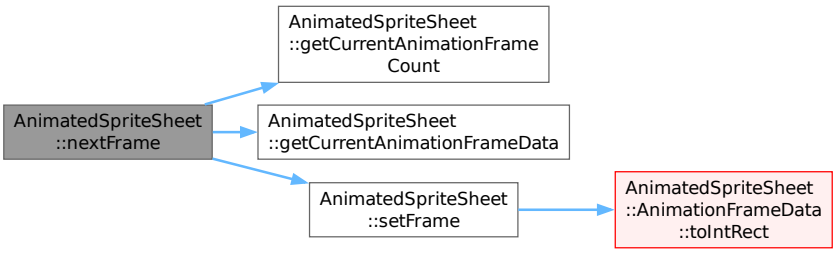
Definition at line 46 of file animatedSpriteSheet.cpp.

```
00046                                       {
00047     LOGTRACEN;
00048     // change frame
00049     ++m_currentFrameId;
00050     m_currentFrameId %= getCurrentAnimationFrameCount();
00051     setFrame(getCurrentAnimationFrameData());
00052 }
```

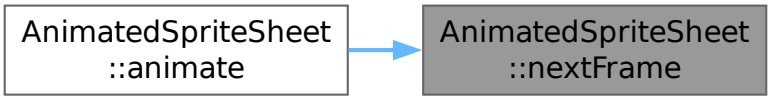
References getCurrentAnimationFrameCount(), getCurrentAnimationFrameData(), LOGTRACEN, m_currentFrameId, and setFrame().

Referenced by animate().

Here is the call graph for this function:



Here is the caller graph for this function:



8.2.4.12 setFrame()

```
void AnimatedSpriteSheet::setFrame (
            const AnimationFrameData & frameData )  [protected]
```

Definition at line 79 of file animatedSpriteSheet.cpp.

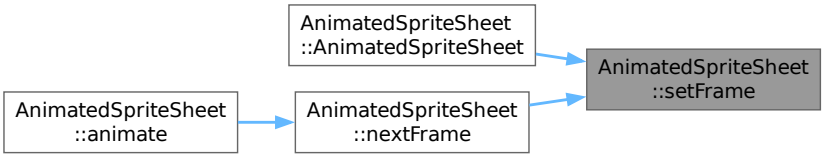
```
00079                                                                   {
00080   LOGTRACEN;
00081   setTextureRect(frameData.toIntRect());
00082   m_animationTimer = 0;
00083 }
```

References LOGTRACEN, m_animationTimer, and AnimatedSpriteSheet::AnimationFrameData::toIntRect().

Referenced by AnimatedSpriteSheet(), and nextFrame().

Here is the call graph for this function:

Here is the caller graph for this function:



8.2.4.13 setPosition()

```
void AnimatedObject::setPosition (
            Point2d pos )  [virtual], [inherited]
```

Object position setter.

Parameters

pos	Position to be set.

Reimplemented from GameObject.

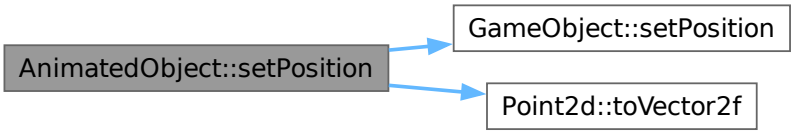
Definition at line 9 of file animatedObject.cpp.

```
00009                                                {
00010     GameObject::setPosition(pos);
00011     sf::Sprite::setPosition(pos.toVector2f());
00012 };
```

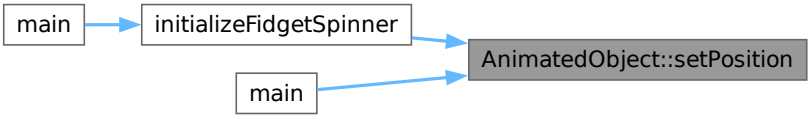
References GameObject::setPosition(), and Point2d::toVector2f().

Referenced by initializeFidgetSpinner(), and main().

Here is the call graph for this function:



Here is the caller graph for this function:



8.2.5 Member Data Documentation

8.2.5.1 m_animationsData

```
std::vector<animationData_t> AnimatedSpriteSheet::m_animationsData  [private]
```

Colecction of animations.

Definition at line 55 of file animatedSpriteSheet.hpp.

Referenced by getCurrentAnimationFrameCount(), getCurrentAnimationFrameData(), and loadFromConfigFile().

8.2.5.2 m_animationTimer

```
float AnimatedSpriteSheet::m_animationTimer {}  [private]
```

Definition at line 63 of file animatedSpriteSheet.hpp.
```
00063 {};
```

Referenced by animate(), and setFrame().

8.2.5.3 m_currentAnimationTypeIndex

```
int AnimatedSpriteSheet::m_currentAnimationTypeIndex  [private]
```

Indicates index of current animation in m_animationsData.

Definition at line 60 of file animatedSpriteSheet.hpp.

Referenced by getCurrentAnimationFrameCount(), and getCurrentAnimationFrameData().

8.2.5.4 m_currentFrameId

```
int AnimatedSpriteSheet::m_currentFrameId {}  [private]
```

Definition at line 61 of file animatedSpriteSheet.hpp.
```
00061 {};
```

Referenced by getCurrentAnimationFrameData(), and nextFrame().

8.2.5.5 m_position

```
Point2d GameObject::m_position {}  [private], [inherited]
```

Position of object on screen.

Definition at line 14 of file GameObject.hpp.
```
00014 {};
```

Referenced by GameObject::getPosition(), GameObject::move(), and GameObject::setPosition().

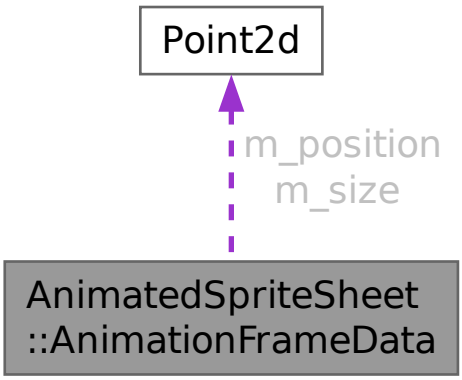
The documentation for this class was generated from the following files:

- animatedSpriteSheet.hpp
- animatedSpriteSheet.cpp

8.3 AnimatedSpriteSheet::AnimationFrameData Struct Reference

`#include <animatedSpriteSheet.hpp>`

Collaboration diagram for AnimatedSpriteSheet::AnimationFrameData:



Public Member Functions

- sf::IntRect toIntRect () const

Public Attributes

- float m_duration
- Point2d m_size
- Point2d m_position

Friends

- std::istream & operator>> (std::istream &is, AnimationFrameData &afd)

8.3.1 Detailed Description

Definition at line 11 of file animatedSpriteSheet.hpp.

8.3.2 Member Function Documentation

8.3.2.1 toIntRect()

```
sf::IntRect AnimatedSpriteSheet::AnimationFrameData::toIntRect ( ) const
```

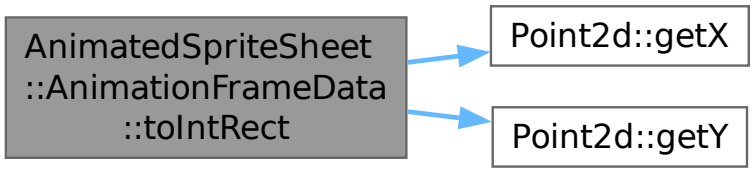
Definition at line 20 of file animatedSpriteSheet.cpp.

```
00020                                                                   {
00021     LOGTRACEN;
00022     return {static_cast<int>(m_position.getX()),
00023             static_cast<int>(m_position.getY()), static_cast<int>(m_size.getX()),
00024             static_cast<int>(m_size.getY())};
00025 }
```

References Point2d::getX(), Point2d::getY(), LOGTRACEN, m_position, and m_size.

Referenced by AnimatedSpriteSheet::setFrame().

Here is the call graph for this function:



Here is the caller graph for this function:

8.3.3 Friends And Related Symbol Documentation

8.3.3.1 operator>>

```
std::istream & operator>> (
            std::istream & is,
            AnimatedSpriteSheet::AnimationFrameData & afd )  [friend]
```

Definition at line 11 of file animatedSpriteSheet.cpp.

```
00012                                                                   {
00013     LOGTRACEN;
00014     is » afd.m_position;
00015     is » afd.m_size;
00016     is » afd.m_duration;
00017     return is;
00018 }
```

8.3.4 Member Data Documentation

8.3.4.1 m_duration

```
float AnimatedSpriteSheet::AnimationFrameData::m_duration
```

Definition at line 13 of file animatedSpriteSheet.hpp.

Referenced by AnimatedSpriteSheet::getCurrentAnimationFrameDuration().

8.3.4.2 m_position

```
Point2d AnimatedSpriteSheet::AnimationFrameData::m_position
```

Definition at line 17 of file animatedSpriteSheet.hpp.

Referenced by FidgetSpinner::getCenterPoint(), and toIntRect().

8.3.4.3 m_size

```
Point2d AnimatedSpriteSheet::AnimationFrameData::m_size
```

Definition at line 15 of file animatedSpriteSheet.hpp.

Referenced by FidgetSpinner::getCenterPoint(), and toIntRect().

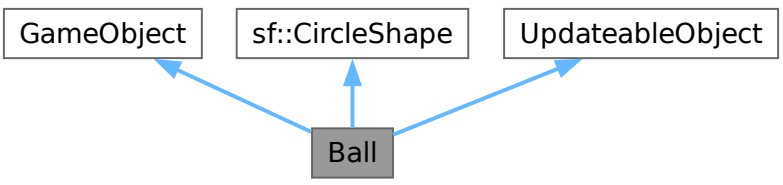
The documentation for this struct was generated from the following files:

- animatedSpriteSheet.hpp
- animatedSpriteSheet.cpp

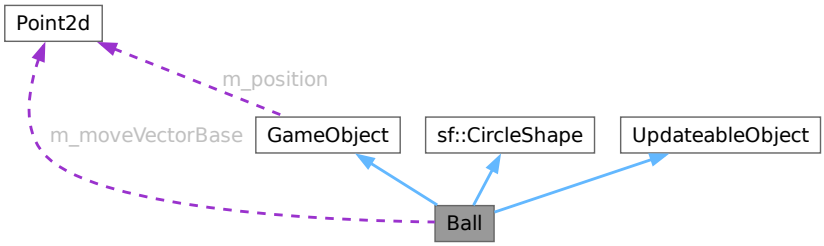
8.4 Ball Class Reference

```
#include <ball.hpp>
```

Inheritance diagram for Ball:



Collaboration diagram for Ball:



Public Member Functions

- Ball (float radius=10, std::size_t pointCount=30)
- void setMovementSpeed (float movementSpeed)
- void setMoveVectorBase (Point2d moveVectorOrigin)
- virtual void update ()

  Updates state of object.
- virtual void move (Point2d vector)

  Translates object in space.
- virtual void setPositon (Point2d pos)
- bool isDead () const
- virtual void setPosition (Point2d pos)

  Object position setter.
- virtual Point2d getPosition () const

  Object position getter.

Private Member Functions

- Point2d getMoveVector ()

Private Attributes

- float m_movementSpeed {10}
- Point2d m_moveVectorBase {}
- float m_timeToLife {15}
- bool m_dead {false}
- Point2d m_position {}

  Position of object on screen.

8.4.1 Detailed Description

Definition at line 10 of file ball.hpp.

8.4.2 Constructor & Destructor Documentation

8.4.2.1 Ball()

```
Ball::Ball (
            float radius = 10,
            std::size_t pointCount = 30 )
```

Definition at line 9 of file ball.cpp.
```
00010     : sf::CircleShape(radius, pointCount) {}
```

8.4.3 Member Function Documentation

8.4.3.1 getMoveVector()

```
Point2d Ball::getMoveVector ( )  [private]
```

Definition at line 43 of file ball.cpp.
```
00043 { return {m_moveVectorBase * m_movementSpeed}; }
```

References m_movementSpeed, and m_moveVectorBase.

Referenced by update().

Here is the caller graph for this function:

8.4.3.2 getPosition()

```
Point2d GameObject::getPosition ( ) const  [virtual], [inherited]
```

Object position getter.

Definition at line 7 of file GameObject.cpp.
```
00007 { return m_position; }
```

References GameObject::m_position.

8.4.3.3 isDead()

```
bool Ball::isDead ( ) const
```

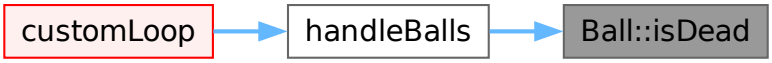
Definition at line 30 of file ball.cpp.

```
00030 { return m_dead; }
```

References m_dead.

Referenced by handleBalls().

Here is the caller graph for this function:



8.4.3.4 move()

```
void Ball::move (
            Point2d vector )  [virtual]
```

Translates object in space.

Parameters

vector	2D vector added to current object position.

Reimplemented from GameObject.

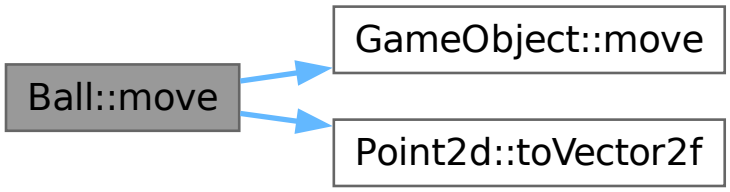
Definition at line 20 of file ball.cpp.

```
00020                                {
00021   GameObject::move(vector);
00022   sf::CircleShape::move(vector.toVector2f());
00023 }
```

References GameObject::move(), and Point2d::toVector2f().

Referenced by update().

Here is the call graph for this function:



Here is the caller graph for this function:

8.4.3.5 setMovementSpeed()

```
void Ball::setMovementSpeed (
            float movementSpeed )
```

Definition at line 12 of file ball.cpp.

```
00012                                                {
00013     m_movementSpeed = movementSpeed;
00014 }
```

References m_movementSpeed.

Referenced by throwBallPlayer().

Here is the caller graph for this function:

8.4.3.6 setMoveVectorBase()

```
void Ball::setMoveVectorBase (
            Point2d moveVectorOrigin )
```

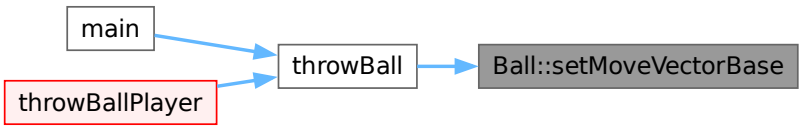
Definition at line 16 of file ball.cpp.

```
00016                                                {
00017   m_moveVectorBase = moveVectorBase;
00018 }
```

References m_moveVectorBase.

Referenced by throwBall().

Here is the caller graph for this function:



8.4.3.7 setPosition()

```
void GameObject::setPosition (
            Point2d pos )  [virtual], [inherited]
```

Object position setter.

Parameters

pos	Position to be set.

Reimplemented in AnimatedObject.

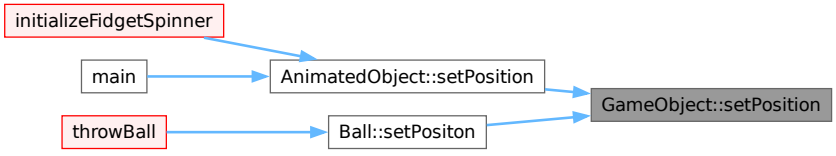
Definition at line 5 of file GameObject.cpp.

```
00005 { m_position = pos; }
```

References GameObject::m_position.

Referenced by AnimatedObject::setPosition(), and setPositon().

Here is the caller graph for this function:



8.4.3.8 setPositon()

```
void Ball::setPositon (
            Point2d pos )  [virtual]
```

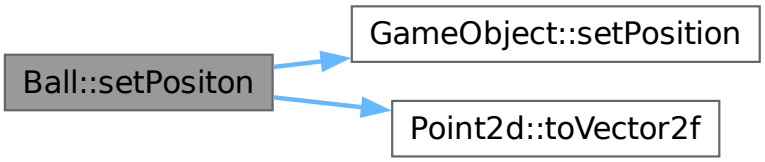
Definition at line 25 of file ball.cpp.

```
00025                                {
00026   GameObject::setPosition(pos);
00027   sf::Transformable::setPosition(pos.toVector2f());
00028 }
```

References GameObject::setPosition(), and Point2d::toVector2f().

Referenced by throwBall().

Here is the call graph for this function:



Here is the caller graph for this function:

8.4.3.9 update()

```
void Ball::update ( )  [virtual]
```

Updates state of object.

Implements UpdateableObject.

Definition at line 32 of file ball.cpp.

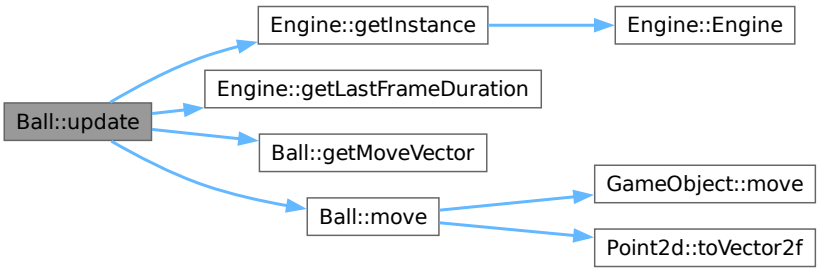
```
00032                    {
00033   if (m_timeToLife <= 0) {
00034     m_dead = true;
00035     return;
00036   }
00037   m_timeToLife -= Engine::getInstance().getLastFrameDuration().asSeconds();
00038
```

```
00039   move(getMoveVector() *
00040        Engine::getInstance().getLastFrameDuration().asSeconds());
00041 }
```

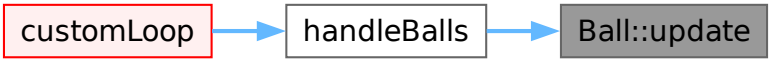
References Engine::getInstance(), Engine::getLastFrameDuration(), getMoveVector(), m_dead, m_timeToLife, and move().

Referenced by handleBalls().

Here is the call graph for this function:



Here is the caller graph for this function:



8.4.4 Member Data Documentation

8.4.4.1 m_dead

```
bool Ball::m_dead {false}  [private]
```

Definition at line 32 of file ball.hpp.

```
00032 {false};
```

Referenced by isDead(), and update().

8.4.4.2 m_movementSpeed

```
float Ball::m_movementSpeed {10}  [private]
```

Definition at line 29 of file ball.hpp.

```
00029 {10};
```

Referenced by getMoveVector(), and setMovementSpeed().

8.4.4.3 m_moveVectorBase

```
Point2d Ball::m_moveVectorBase {}  [private]
```

Definition at line 30 of file ball.hpp.
```
00030 {};
```

Referenced by getMoveVector(), and setMoveVectorBase().

8.4.4.4 m_position

```
Point2d GameObject::m_position {}  [private], [inherited]
```

Position of object on screen.

Definition at line 14 of file GameObject.hpp.
```
00014 {};
```

Referenced by GameObject::getPosition(), GameObject::move(), and GameObject::setPosition().

8.4.4.5 m_timeToLife

```
float Ball::m_timeToLife {15}  [private]
```

Definition at line 31 of file ball.hpp.
```
00031 {15};
```

Referenced by update().

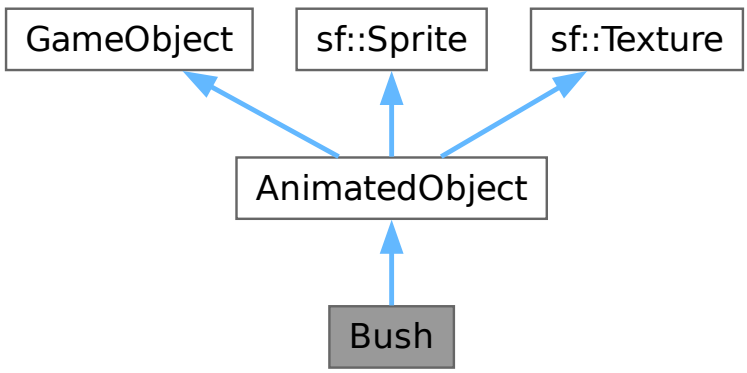
The documentation for this class was generated from the following files:

- ball.hpp
- ball.cpp

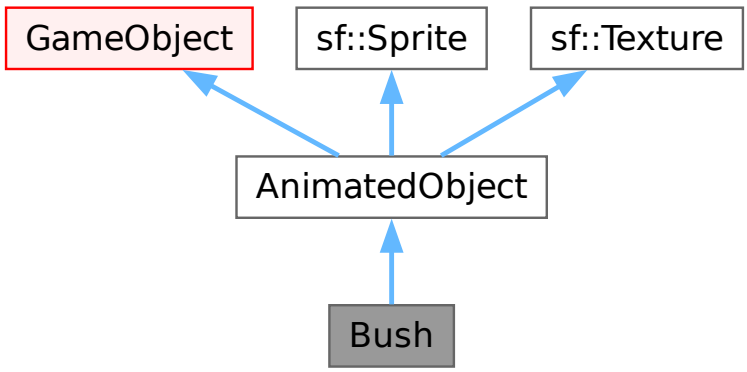
8.5 Bush Class Reference

```
#include <bush.hpp>
```

Inheritance diagram for Bush:



Collaboration diagram for Bush:



Public Member Functions

- Bush ()
- ~Bush ()
- virtual void animate ()

  Animates object.
- virtual void setPosition (Point2d pos)

  Object position setter.
- virtual void move (Point2d vec)

  Translates object in space.
- virtual Point2d getPosition () const

  Object position getter.

Private Member Functions

- void nextSprite ()
- sf::IntRect getCurrentSpriteRectangle (int frameNumber)

Private Attributes

- int m_aninmationFrameIndicator {}
- float m_animationFrameDuration {1}
- float m_animationTimer {}
- Point2d m_position {}

  Position of object on screen.

Static Private Attributes

- static constexpr std::string_view s_spriteSheetPath {"resource/bush/bush.png"}

8.5.1 Detailed Description

Definition at line 8 of file bush.hpp.

8.5.2 Constructor & Destructor Documentation

8.5.2.1 Bush()

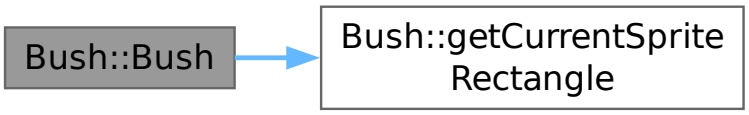
```
Bush::Bush ( )
```

Definition at line 10 of file bush.cpp.

```
00010           {
00011   LOGINFON;
00012   loadFromFile(std::string(s_spriteSheetPath), sf::IntRect{0, 0, 300, 150});
00013   setTexture(*this);
00014   setTextureRect(getCurrentSpriteRectangle(0));
00015 }
```

References getCurrentSpriteRectangle(), LOGINFON, and s_spriteSheetPath.

Here is the call graph for this function:



8.5.2.2 ~Bush()

```
Bush::~Bush ( )
```

Definition at line 8 of file bush.cpp.

```
00008 {};
```

8.5.3 Member Function Documentation

8.5.3.1 animate()

```
void Bush::animate ( )  [virtual]
```

Animates object.

Reimplemented from AnimatedObject.

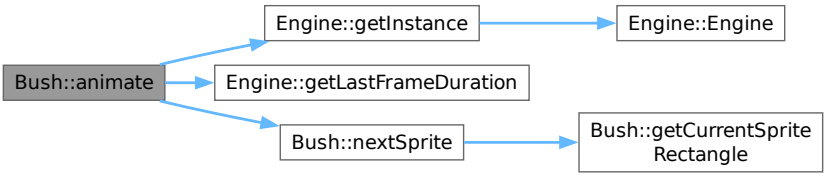
Definition at line 17 of file bush.cpp.

```
00017                   {
00018   m_animationTimer += Engine::getInstance().getLastFrameDuration().asSeconds();
```

```
00019   if (m_animationTimer < m_animationFrameDuration)
00020     return;
00021
00022   m_animationTimer = 0;
00023   nextSprite();
00024 }
```

References Engine::getInstance(), Engine::getLastFrameDuration(), m_animationFrameDuration, m_animationTimer, and nextSprite().

Here is the call graph for this function:



8.5.3.2 getCurrentSpriteRectangle()

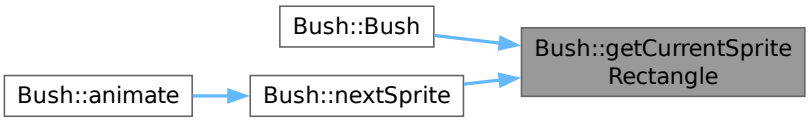
```
sf::IntRect Bush::getCurrentSpriteRectangle (
            int frameNumber )  [private]
```

Definition at line 32 of file bush.cpp.

```
00032                                                    {
00033   return sf::IntRect{frameNumber * 150, 0, 150, 150};
00034 }
```

Referenced by Bush(), and nextSprite().

Here is the caller graph for this function:



8.5.3.3 getPosition()

```
Point2d GameObject::getPosition ( ) const  [virtual], [inherited]
```

Object position getter.

Definition at line 7 of file GameObject.cpp.

```
00007 { return m_position; }
```

References GameObject::m_position.

8.5.3.4 move()

```
void AnimatedObject::move (
            Point2d vector )  [virtual], [inherited]
```

Translates object in space.

Parameters

vector	2D vector added to current object position.

Reimplemented from GameObject.

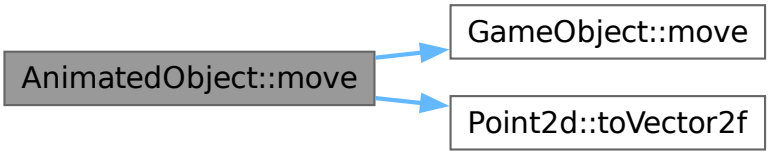
Reimplemented in Player.

Definition at line 14 of file animatedObject.cpp.

```
00014                                       {
00015   GameObject::move(vec);
00016   sf::Sprite::move(vec.toVector2f());
00017   // LOGINFO « GameObject::getPosition() « '\n';
00018 };
```

References GameObject::move(), and Point2d::toVector2f().

Here is the call graph for this function:



8.5.3.5 nextSprite()

```
void Bush::nextSprite ( )  [private]
```

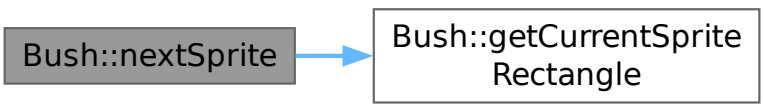
Definition at line 26 of file bush.cpp.

```
00026                       {
00027   this->setTextureRect(getCurrentSpriteRectangle(m_aninmationFrameIndicator));
00028   ++m_aninmationFrameIndicator;
00029   m_aninmationFrameIndicator %= 2;
00030 }
```

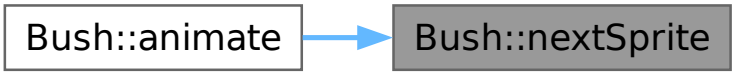
References getCurrentSpriteRectangle(), and m_aninmationFrameIndicator.

Referenced by animate().

Here is the call graph for this function:



Here is the caller graph for this function:



8.5.3.6 setPosition()

```
void AnimatedObject::setPosition (
            Point2d pos )  [virtual], [inherited]
```

Object position setter.

Parameters

pos	Position to be set.

Reimplemented from GameObject.

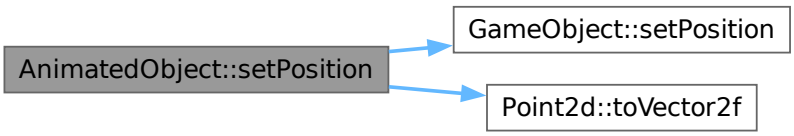
Definition at line 9 of file animatedObject.cpp.

```
00009                                               {
00010   GameObject::setPosition(pos);
00011   sf::Sprite::setPosition(pos.toVector2f());
00012 };
```

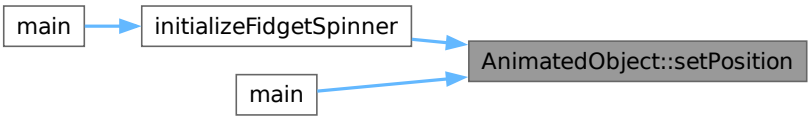
References GameObject::setPosition(), and Point2d::toVector2f().

Referenced by initializeFidgetSpinner(), and main().

Here is the call graph for this function:



Here is the caller graph for this function:



8.5.4 Member Data Documentation

8.5.4.1 m_animationFrameDuration

```
float Bush::m_animationFrameDuration {1}  [private]
```

Definition at line 11 of file bush.hpp.
```
00011 {1};
```

Referenced by animate().

8.5.4.2 m_animationTimer

```
float Bush::m_animationTimer {}  [private]
```

Definition at line 12 of file bush.hpp.
```
00012 {};
```

Referenced by animate().

8.5.4.3 m_aninmationFrameIndicator

```
int Bush::m_aninmationFrameIndicator {}  [private]
```

Definition at line 10 of file bush.hpp.
```
00010 {};
```

Referenced by nextSprite().

8.5.4.4 m_position

```
Point2d GameObject::m_position {}  [private], [inherited]
```

Position of object on screen.

Definition at line 14 of file GameObject.hpp.
```
00014 {};
```

Referenced by GameObject::getPosition(), GameObject::move(), and GameObject::setPosition().

8.5.4.5 s_spriteSheetPath

```
constexpr std::string_view Bush::s_spriteSheetPath {"resource/bush/bush.png"}  [static], [constexpr],
[private]
```

Definition at line 9 of file bush.hpp.
```
00009 {"resource/bush/bush.png"};
```

Referenced by Bush().

The documentation for this class was generated from the following files:

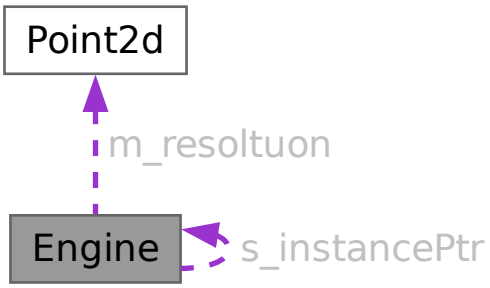
- bush.hpp
- bush.cpp

8.6 Engine Class Reference

The engine class.

`#include <engine.hpp>`

Collaboration diagram for Engine:



Public Types

- using Time = sf::Time
- using Clock = sf::Clock
- using RenderWindow = sf::RenderWindow
- using Event = sf::Event
- using Drawable = sf::Drawable
- using Shape = sf::Shape
- using eventHandler_t = std::function< void(const Event &)>
- using drawableCollection_t = std::set< Drawable * >
- using animatedObjecsCollection_t = std::set< AnimatedObject * >

Public Member Functions

- Engine ()

  Constructor.
- ~Engine ()

  Destructor.
- Engine & setMaxFps (int fps)

  Set Max FPS.
- Engine & setWindowTitle (std::string_view title)

  Set window title.
- Engine & setResolution (Point2d resolution)

  Set resolution.
- Engine & setResolution (Point2d::cordinate_t x, Point2d::cordinate_t y)

  Set resolution.
- Engine & setLoopFunction (std::function< void()> function)

Set function that is invoked in the main loop.

- Engine & setEventHandler (Event::EventType eventType, eventHandler_t handler)

  Set custom event handler.
- Point2d getResolution () const

  Resolution getter.
- Engine & buildWindow ()

  Builds the window.
- void handleEvents ()

  Handles events.
- void clear ()

  Clears window to a single color.
- void render ()

  Renders objects.
- void display ()

  Displays rendered objects.
- void loop ()

  The main loop.
- RenderWindow & getWindow ()

  Window getter.
- void add (Drawable *drawable)

  Adds drawable to Collection.
- void add (AnimatedObject *animatedObject)

  Adds animated object to Collection.
- void remove (Drawable *)
- Time getLastFrameDuration () const

  Last frame duration getter.

Static Public Member Functions

- static Engine & getInstance ()

  Instance getter.

Private Member Functions

- void drawDrawables ()

  Draws objects.
- void animateObjects ()

  Draws animated objects.

Private Attributes

- std::function< void()> m_loopFunction {[]() {}}

  custom function fired in the main loop.
- RenderWindow m_window {}

  Window to draw stuff on.
- Point2d m_resoltuon {1000, 800}

  Resolution of the window.
- std::string m_windowTitle {"dev"}

  Window title.

- int m_maxFPS {60}

  Max FPS.
- std::array< eventHandler_t, Event::Count > m_eventHandlers

  Custom functions handling events.
- drawableCollection_t m_drawablesCollection {}

  Stuff that is drawn in the window each frame.
- animatedObjecsCollection_t m_animatedObjectsCollection {}
- Clock m_clock {}

  Clock for computing ticks.
- Time m_lastFrameDuration {}

  Duration of the last frame.

Static Private Attributes

- static Engine * s_instancePtr {nullptr}

  Pointer to the instance.

8.6.1 Detailed Description

The engine class.

Definition at line 18 of file engine.hpp.

8.6.2 Member Typedef Documentation

8.6.2.1 animatedObjecsCollection_t

```
using Engine::animatedObjecsCollection_t = std::set<AnimatedObject *>
```

Definition at line 29 of file engine.hpp.

8.6.2.2 Clock

```
using Engine::Clock = sf::Clock
```

Definition at line 21 of file engine.hpp.

8.6.2.3 Drawable

```
using Engine::Drawable = sf::Drawable
```

Definition at line 24 of file engine.hpp.

8.6.2.4 drawableCollection_t

```
using Engine::drawableCollection_t = std::set<Drawable *>
```

Definition at line 28 of file engine.hpp.

8.6.2.5 Event

```
using Engine::Event = sf::Event
```

Definition at line 23 of file engine.hpp.

8.6.2.6 eventHandler_t

```
using Engine::eventHandler_t = std::function<void(const Event &)>
```

Definition at line 27 of file engine.hpp.

8.6.2.7 RenderWindow

```
using Engine::RenderWindow = sf::RenderWindow
```

Definition at line 22 of file engine.hpp.

8.6.2.8 Shape

```
using Engine::Shape = sf::Shape
```

Definition at line 25 of file engine.hpp.

8.6.2.9 Time

```
using Engine::Time = sf::Time
```

Definition at line 20 of file engine.hpp.

8.6.3 Constructor & Destructor Documentation

8.6.3.1 Engine()

```
Engine::Engine ( )
```

Constructor.

Fills custom event handlers with placeholder functions.

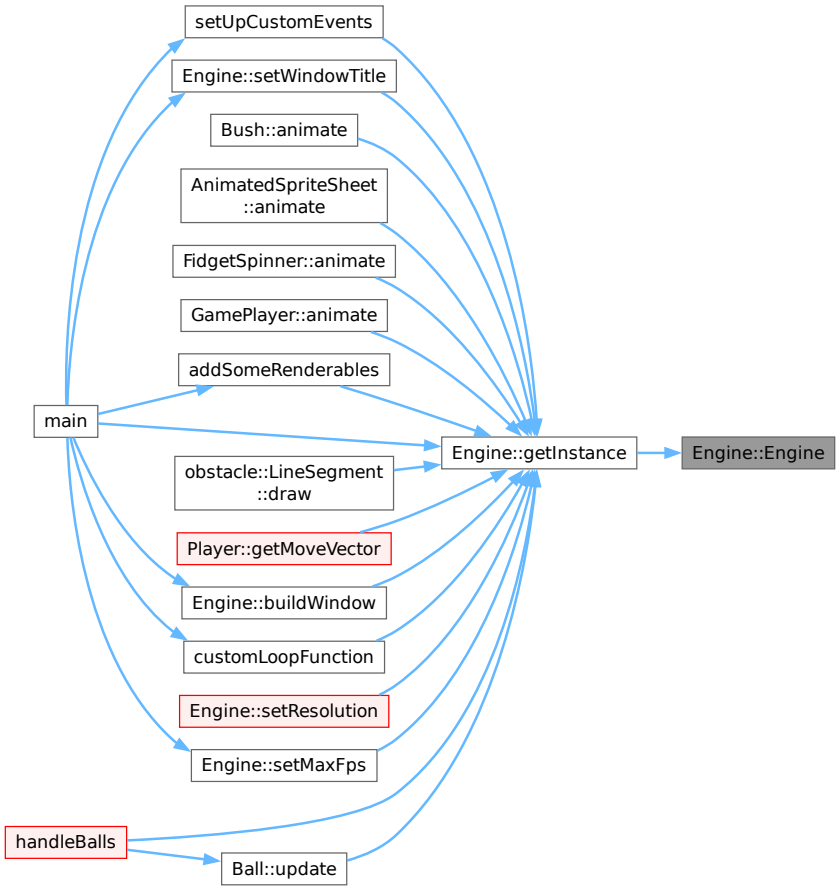
Definition at line 14 of file engine.cpp.

```
00014                {
00015     LOGINFON;
00017     m_eventHandlers.fill([](const sf::Event &event) {});
00018 }
```

References LOGINFON, and m_eventHandlers.

Referenced by getInstance().

Here is the caller graph for this function:



8.6.3.2 ~Engine()

```
Engine::~Engine ( )
```

Destructor.

Definition at line 20 of file engine.cpp.

```
00020                {
00021   LOGINFON;
00022   for (sf::Drawable *it : m_drawablesCollection) {
00023     delete it;
00024   }
00025   for (AnimatedObject *it : m_animatedObjectsCollection) {
00026     delete it;
00027   }
00028 }
```

References LOGINFON, m_animatedObjectsCollection, and m_drawablesCollection.

8.6.4 Member Function Documentation

8.6.4.1 add() [1/2]

```
void Engine::add (
            AnimatedObject * animatedObject )
```

Adds animated object to Collection.

Parameters

animatedObject	animated object.

Definition at line 127 of file engine.cpp.

```
00127                                                {
00128   LOGINFO « animatedObject « '\n';
00129   m_animatedObjectsCollection.insert(animatedObject);
00130 }
```

References LOGINFO, and m_animatedObjectsCollection.

8.6.4.2 add() [2/2]

```
void Engine::add (
            Drawable * drawable )
```

Adds drawable to Collection.

Parameters

drawable	Drawable shape.

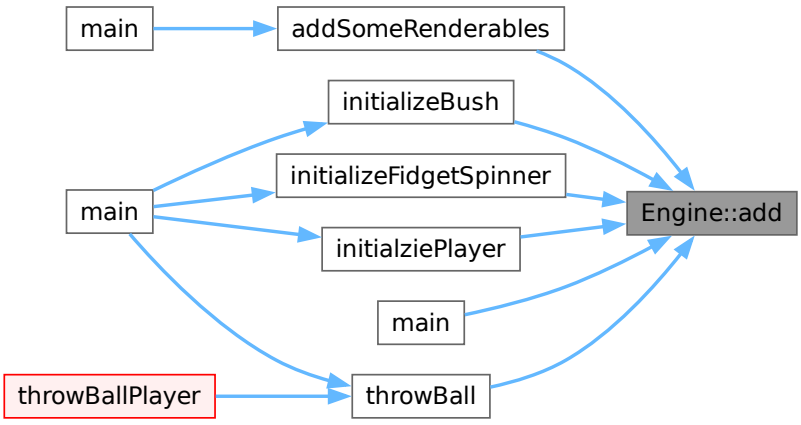
Definition at line 122 of file engine.cpp.

```
00122                                    {
00123   LOGINFO « drawable « '\n';
00124   m_drawablesCollection.insert(drawable);
00125 }
```

References LOGINFO, and m_drawablesCollection.

Referenced by addSomeRenderables(), initializeBush(), initializeFidgetSpinner(), initialziePlayer(), main(), and throwBall().

Here is the caller graph for this function:



8.6.4.3 animateObjects()

```
void Engine::animateObjects ( )  [private]
```

Draws animated objects.

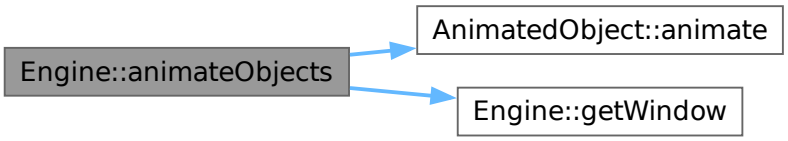
Definition at line 145 of file engine.cpp.

```
00145                                {
00146   for (auto it : m_animatedObjectsCollection) {
00147     it->animate();
00148     getWindow().draw(*it);
00149   }
00150 }
```

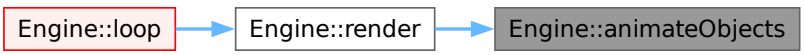
References AnimatedObject::animate(), getWindow(), and m_animatedObjectsCollection.

Referenced by render().

Here is the call graph for this function:



Here is the caller graph for this function:



8.6.4.4 buildWindow()

```
Engine & Engine::buildWindow ( )
```

Builds the window.

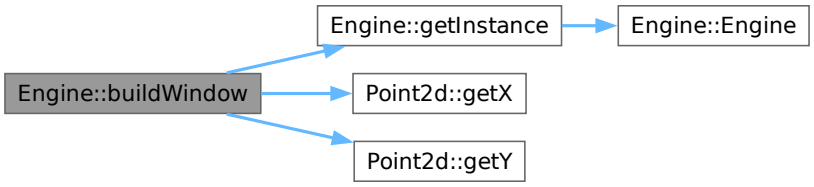
Definition at line 53 of file engine.cpp.

```
00053                                {
00054   LOGINFON;
00055   m_window.create({static_cast<unsigned int>(m_resoltuon.getX()),
00056                    static_cast<unsigned int>(m_resoltuon.getY())},
00057                   m_windowTitle);
00058   m_window.setFramerateLimit(m_maxFPS);
00059   return getInstance();
00060 }
```

References getInstance(), Point2d::getX(), Point2d::getY(), LOGINFON, m_maxFPS, m_resoltuon, m_window, and m_windowTitle.

Referenced by main().

Here is the call graph for this function:



Here is the caller graph for this function:

8.6.4.5 clear()

```
void Engine::clear ( )
```

Clears window to a single color.

Definition at line 94 of file engine.cpp.

```
00094 { m_window.clear(); }
```

References m_window.

Referenced by loop().

Here is the caller graph for this function:

8.6.4.6 display()

```
void Engine::display ( )
```

Displays rendered objects.

Definition at line 101 of file engine.cpp.
```
00101 { m_window.display(); }
```

References m_window.

Referenced by loop().

Here is the caller graph for this function:

8.6.4.7 drawDrawables()

```
void Engine::drawDrawables ( )  [private]
```

Draws objects.

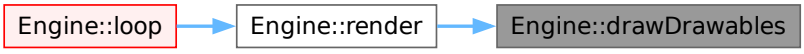
Definition at line 140 of file engine.cpp.
```
00140                               {
00141   for (auto &it : m_drawablesCollection)
00142     getWindow().draw(*it);
00143 }
```

References getWindow(), and m_drawablesCollection.

Referenced by render().

Here is the call graph for this function:

Here is the caller graph for this function:



8.6.4.8 getInstance()

```
Engine & Engine::getInstance ( )  [static]
```

Instance getter.

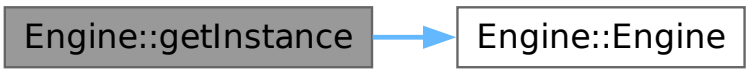
Definition at line 30 of file engine.cpp.

```
00030                             {
00031   if (s_instancePtr == nullptr)
00032     s_instancePtr = new Engine;
00033   return *s_instancePtr;
00034 }
```

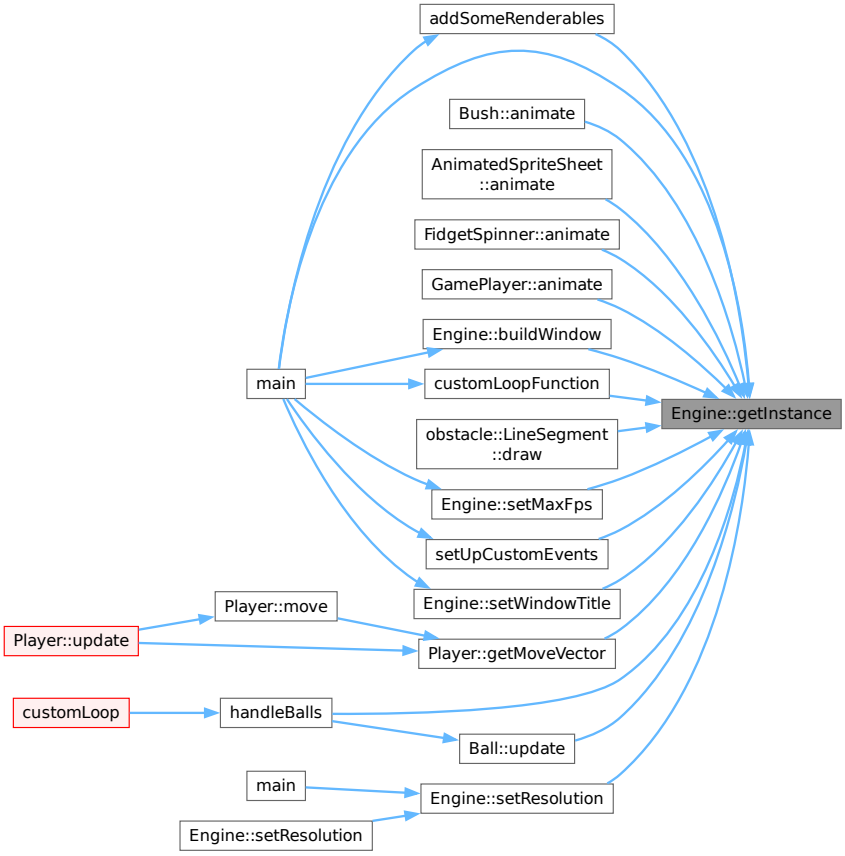
References Engine(), and s_instancePtr.

Referenced by addSomeRenderables(), Bush::animate(), AnimatedSpriteSheet::animate(), FidgetSpinner::animate(), GamePlayer::animate(), buildWindow(), customLoopFunction(), obstacle::LineSegment::draw(), Player::getMoveVector(), handleBalls(), main(), setMaxFps(), setResolution(), setUpCustomEvents(), setWindowTitle(), and Ball::update().

Here is the call graph for this function:



Here is the caller graph for this function:



8.6.4.9 getLastFrameDuration()

```
Engine::Time Engine::getLastFrameDuration ( ) const
```

Last frame duration getter.

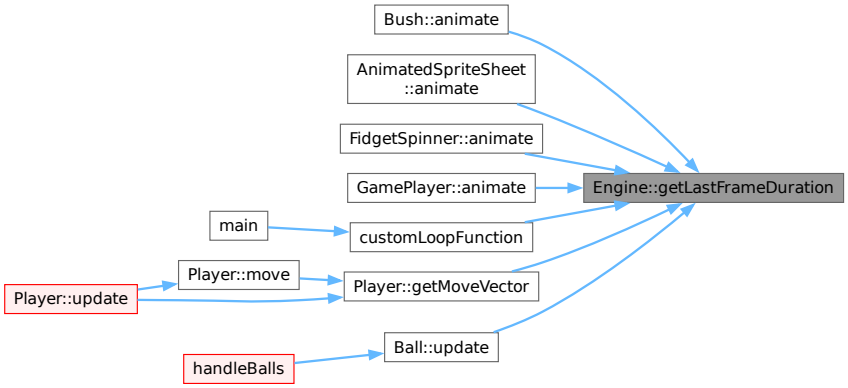
Definition at line 136 of file engine.cpp.

```
00136                                          {
00137   return m_lastFrameDuration;
00138 }
```

References m_lastFrameDuration.

Referenced by Bush::animate(), AnimatedSpriteSheet::animate(), FidgetSpinner::animate(), GamePlayer::animate(), customLoopFunction(), Player::getMoveVector(), and Ball::update().

Here is the caller graph for this function:



8.6.4.10 getResolution()

```
Point2d Engine::getResolution ( ) const
```

Resolution getter.

Definition at line 68 of file engine.cpp.

```
00068 { return m_resoltuon; }
```

References m_resoltuon.

8.6.4.11 getWindow()

```
Engine::RenderWindow & Engine::getWindow ( )
```

Window getter.

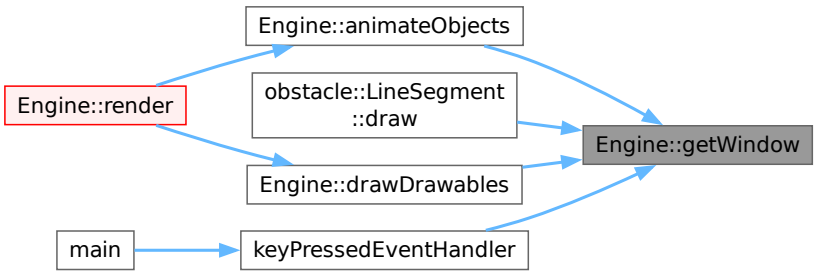
Definition at line 120 of file engine.cpp.

```
00120 { return m_window; }
```

References m_window.

Referenced by animateObjects(), obstacle::LineSegment::draw(), drawDrawables(), and keyPressedEventHandler().

Here is the caller graph for this function:



8.6.4.12 handleEvents()

```
void Engine::handleEvents ( )
```

Handles events.

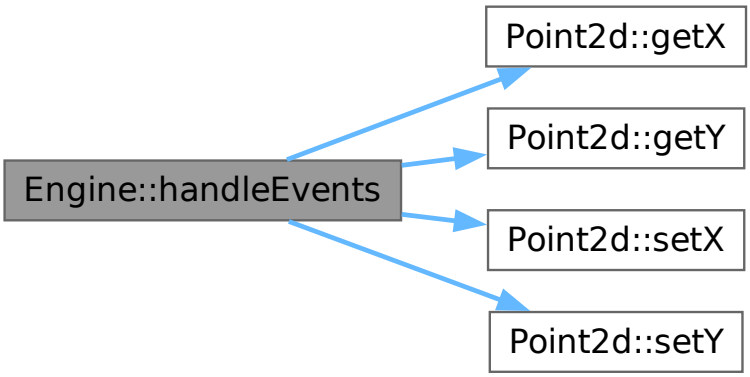
Definition at line 70 of file engine.cpp.

```
00070                           {
00071   sf::Event event;
00072   while (m_window.pollEvent(event)) {
00073     if (event.type == sf::Event::Closed)
00074       m_window.close();
00075     if (event.type == sf::Event::Resized) {
00076
00077       // Update engine info
00078       m_resoltuon.setX(event.size.width);
00079       m_resoltuon.setY(event.size.height);
00080       // make new view
00081       sf::FloatRect view{0, 0, static_cast<float>(m_resoltuon.getX()),
00082                          static_cast<float>(m_resoltuon.getY())};
00083       m_window.setView(sf::View{view});
00084
00085       LOGINFO « "Resized\t" « event.size.width « '\t' « event.size.height
00086               « '\n';
00087     }
00088
00089     // Fire custom event handler.
00090     m_eventHandlers[event.type](event);
00091   }
00092 }
```

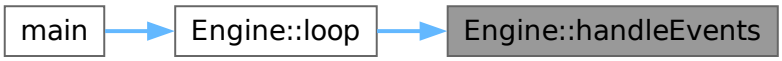
References Point2d::getX(), Point2d::getY(), LOGINFO, m_eventHandlers, m_resoltuon, m_window, Point2d::setX(), and Point2d::setY().

Referenced by loop().

Here is the call graph for this function:



Here is the caller graph for this function:



8.6.4.13 loop()

```
void Engine::loop ( )
```

The main loop.

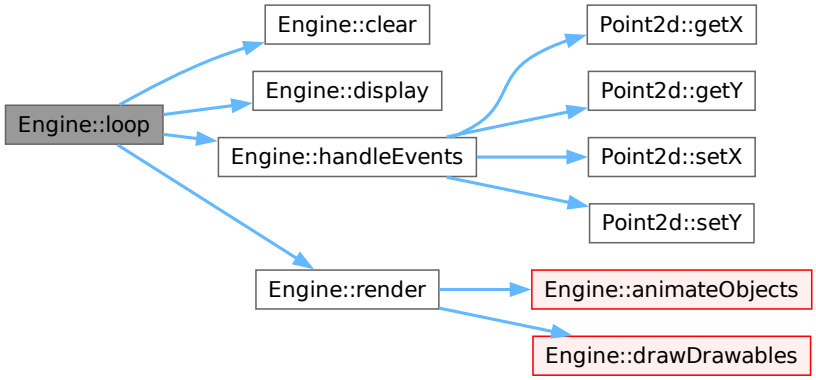
Definition at line 103 of file engine.cpp.

```
00103                   {
00104   LOGINFON;
00105
00106   while (m_window.isOpen()) {
00107     clear();
00108     handleEvents();
00109
00110     // restart clock
00111     m_lastFrameDuration = m_clock.restart();
00112
00113     m_loopFunction();
00114
00115     render();
00116     display();
00117   }
00118 }
```

References clear(), display(), handleEvents(), LOGINFON, m_clock, m_lastFrameDuration, m_loopFunction, m_window, and render().

Referenced by main().

Here is the call graph for this function:



Here is the caller graph for this function:

8.6.4.14 remove()

```
void Engine::remove (
            Engine::Drawable * drawable )
```

Definition at line 132 of file engine.cpp.

```
00132                                                {
00133   m_drawablesCollection.erase(drawable);
00134 }
```

References m_drawablesCollection.

Referenced by handleBalls().

Here is the caller graph for this function:

8.6.4.15 render()

```
void Engine::render ( )
```

Renders objects.

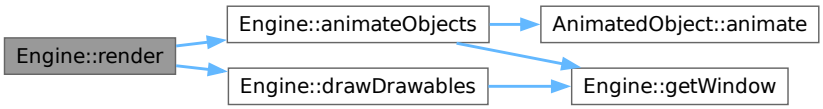
Definition at line 96 of file engine.cpp.

```
00096                       {
00097   animateObjects();
00098   drawDrawables();
00099 }
```

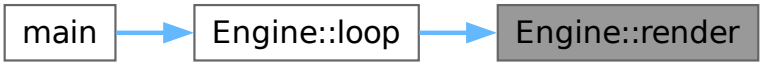
References animateObjects(), and drawDrawables().

Referenced by loop().

Here is the call graph for this function:



Here is the caller graph for this function:



8.6.4.16 setEventHandler()

```
Engine & Engine::setEventHandler (
            Event::EventType eventType,
            eventHandler_t handler )
```

Set custom event handler.

Parameters

eventType	Type of event that handler receives.
handler	Function handling the event.

Definition at line 62 of file engine.cpp.

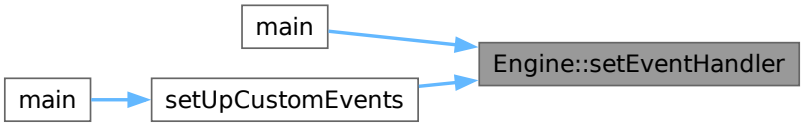
```
00063                                                       {
00064   m_eventHandlers[eventType] = handler;
```

```
00065     return *this;
00066 }
```

References m_eventHandlers.

Referenced by main(), and setUpCustomEvents().

Here is the caller graph for this function:



8.6.4.17 setLoopFunction()

```
Engine & Engine::setLoopFunction (
            std::function< void()> function )  [inline]
```

Set function that is invoked in the main loop.

Parameters

function	Function that will be called in loop.

Definition at line 114 of file engine.hpp.

```
00114                                                    {
00115     m_loopFunction = function;
00116     return *this;
00117   };
```

References m_loopFunction.

Referenced by main().

Here is the caller graph for this function:

8.6.4.18 setMaxFps()

```
Engine & Engine::setMaxFps (
            int fps )
```

Set Max FPS.

Parameters

fps	max FPS.

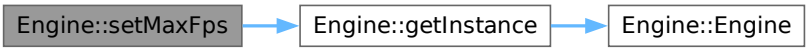
Definition at line 36 of file engine.cpp.

```
00036                                   {
00037   LOGINFON;
00038   m_maxFPS = fps;
00039   m_window.setFramerateLimit(fps);
00040   return getInstance();
00041 }
```

References getInstance(), LOGINFON, m_maxFPS, and m_window.

Referenced by main().

Here is the call graph for this function:



Here is the caller graph for this function:

8.6.4.19 setResolution() [1/2]

```
Engine & Engine::setResolution (
            Point2d resolution )
```

Set resolution.

Parameters

resolution	Resolution to be set.

Definition at line 48 of file engine.cpp.

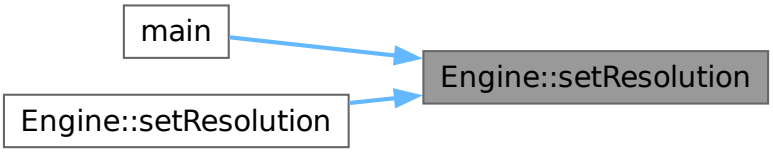
```
00048                                                {
00049     m_resoltuon = resolution;
00050     return getInstance();
00051 }
```

References getInstance(), and m_resoltuon.

Referenced by main(), and setResolution().

Here is the call graph for this function:

Here is the caller graph for this function:



8.6.4.20 setResolution() [2/2]

```
Engine & Engine::setResolution (
            Point2d::cordinate_t x,
            Point2d::cordinate_t y )  [inline]
```

Set resolution.

Definition at line 106 of file engine.hpp.

```
00106                                                                {
00107     setResolution({x, y});
00108     return *this;
00109   };
```

References setResolution().

Here is the call graph for this function:

8.6.4.21 setWindowTitle()

```
Engine & Engine::setWindowTitle (
            std::string_view title )
```

Set window title.

Parameters

title	Title.

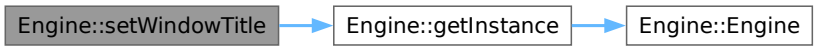
Definition at line 43 of file engine.cpp.

```
00043                                                 {
00044     m_windowTitle = title;
00045     return getInstance();
00046 }
```

References getInstance(), and m_windowTitle.

Referenced by main().

Here is the call graph for this function:



Here is the caller graph for this function:

8.6.5 Member Data Documentation

8.6.5.1 m_animatedObjectsCollection

```
animatedObjecsCollection_t Engine::m_animatedObjectsCollection {}  [private]
```

Definition at line 64 of file engine.hpp.

```
00064 {};
```

Referenced by add(), animateObjects(), and ~Engine().

8.6.5.2 m_clock

```
Clock Engine::m_clock {}  [private]
```

Clock for computing ticks.

Definition at line 68 of file engine.hpp.

```
00068 {};
```

Referenced by loop().

8.6.5.3 m_drawablesCollection

```
drawableCollection_t Engine::m_drawablesCollection {}  [private]
```

Stuff that is drawn in the window each frame.

Definition at line 62 of file engine.hpp.
```
00062 {};
```

Referenced by add(), drawDrawables(), remove(), and ~Engine().

8.6.5.4 m_eventHandlers

```
std::array<eventHandler_t, Event::Count> Engine::m_eventHandlers  [private]
```

Custom functions handling events.

Definition at line 57 of file engine.hpp.

Referenced by Engine(), handleEvents(), and setEventHandler().

8.6.5.5 m_lastFrameDuration

```
Time Engine::m_lastFrameDuration {}  [private]
```

Duration of the last frame.

Definition at line 73 of file engine.hpp.
```
00073 {};
```

Referenced by getLastFrameDuration(), and loop().

8.6.5.6 m_loopFunction

```
std::function<void()> Engine::m_loopFunction {[]() {}}  [private]
```

custom function fired in the main loop.

Definition at line 38 of file engine.hpp.
```
00038 {[]() {}};
```

Referenced by loop(), and setLoopFunction().

8.6.5.7 m_maxFPS

```
int Engine::m_maxFPS {60}  [private]
```

Max FPS.

Definition at line 52 of file engine.hpp.
```
00052 {60};
```

Referenced by buildWindow(), and setMaxFps().

8.6.5.8 m_resoltuon

```
Point2d Engine::m_resoltuon {1000, 800}  [private]
```

Resolution of the window.

Definition at line 45 of file engine.hpp.
```
00045 {1000, 800};
```

Referenced by buildWindow(), getResolution(), handleEvents(), and setResolution().

8.6.5.9 m_window

```
RenderWindow Engine::m_window {}  [private]
```

Window to draw stuff on.

Definition at line 42 of file engine.hpp.
```
00042 {};
```

Referenced by buildWindow(), clear(), display(), getWindow(), handleEvents(), loop(), and setMaxFps().

8.6.5.10 m_windowTitle

```
std::string Engine::m_windowTitle {"dev"}  [private]
```

Window title.

Definition at line 48 of file engine.hpp.
```
00048 {"dev"};
```

Referenced by buildWindow(), and setWindowTitle().

8.6.5.11 s_instancePtr

```
Engine * Engine::s_instancePtr {nullptr}  [static], [private]
```

Pointer to the instance.

Definition at line 12 of file engine.hpp.

Referenced by getInstance().

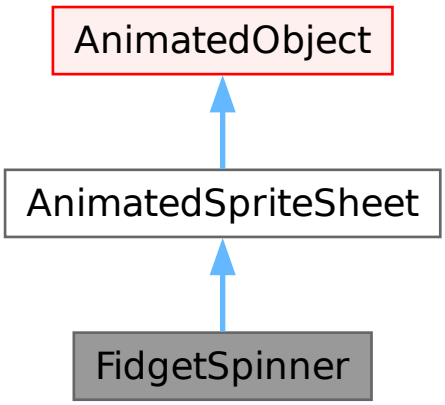
The documentation for this class was generated from the following files:

- engine.hpp
- engine.cpp

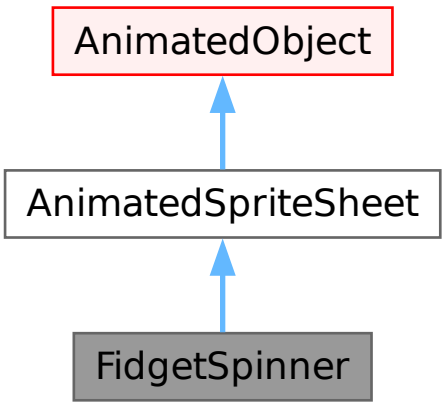
8.7 FidgetSpinner Class Reference

`#include <fidgetSpinner.hpp>`

Inheritance diagram for FidgetSpinner:



Collaboration diagram for FidgetSpinner:



Public Types

- using animationData_t = std::vector< AnimationFrameData >

Public Member Functions

- FidgetSpinner (std::string_view path)
- virtual void animate () override

  Animates object.
- Point2d getCenterPoint () const
- void addRotationSpeed (float speed)
- void setRotationResistance (float speed)
- virtual void setPosition (Point2d pos)

  Object position setter.
- virtual void move (Point2d vec)

  Translates object in space.
- virtual Point2d getPosition () const

  Object position getter.

Protected Member Functions

- int getCurrentAnimationFrameCount () const
- sf::IntRect getCurrentAnimationFrameRect () const
- float getCurrentAnimationFrameDuration () const
- const AnimationFrameData & getCurrentAnimationFrameData () const
- void nextFrame ()
- void setFrame (const AnimationFrameData &frameData)
- void loadFrame (std::istream &stream, animationData_t &animationData)

  load frame data from stream
- void loadSpritesheet (std::istream &stream, std::string_view configFileDirectoryPath)
- void loadFromConfigFile (std::string_view pathToDir)

Private Attributes

- float m_rotationResistance {0.1}
- float m_rotationspeed {0}
- float m_angle {}
- std::vector< animationData_t > m_animationsData
- int m_currentAnimationTypeIndex
- int m_currentFrameId {}
- float m_animationTimer {}
- Point2d m_position {}

  Position of object on screen.

8.7.1 Detailed Description

Definition at line 8 of file fidgetSpinner.hpp.

8.7.2 Member Typedef Documentation

8.7.2.1 animationData_t

```
using AnimatedSpriteSheet::animationData_t = std::vector<AnimationFrameData>  [inherited]
```

Definition at line 24 of file animatedSpriteSheet.hpp.

8.7.3 Constructor & Destructor Documentation

8.7.3.1 FidgetSpinner()

```
FidgetSpinner::FidgetSpinner (
            std::string_view path )
```

Definition at line 8 of file fidgetSpinner.cpp.

```
00009     : AnimatedSpriteSheet(path) {
00010   LOGINFON;
00011
00012   Point2d offset(getSize().x / 2.f + 0.5f, getSize().y / 2.f + 0.5f);
00013   setOrigin(offset.toVector2f());
00014 };
```

References LOGINFON, and Point2d::toVector2f().

Here is the call graph for this function:

8.7.4 Member Function Documentation

8.7.4.1 addRotationSpeed()

```
void FidgetSpinner::addRotationSpeed (
            float speed )
```

Definition at line 35 of file fidgetSpinner.cpp.

```
00035 { m_rotationspeed += speed; }
```

References m_rotationspeed.

Referenced by spinTheFidget().

Here is the caller graph for this function:

8.7.4.2 animate()

```
void FidgetSpinner::animate ( )  [override], [virtual]
```

Animates object.

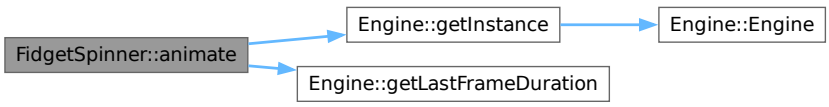
Reimplemented from AnimatedSpriteSheet.

Definition at line 16 of file fidgetSpinner.cpp.

```
00016                                {
00017   m_angle += m_rotationspeed *
00018              Engine::getInstance().getLastFrameDuration().asSeconds();
00019   setRotation(m_angle);
00020
00021   if (m_rotationspeed > 0) {
00022     m_rotationspeed -= m_rotationResistance + m_rotationspeed / 500;
00023     if (m_rotationspeed < 0)
00024       m_rotationspeed = 0;
00025   }
00026 }
```

References Engine::getInstance(), Engine::getLastFrameDuration(), m_angle, m_rotationResistance, and m_rotationspeed.

Here is the call graph for this function:



8.7.4.3 getCenterPoint()

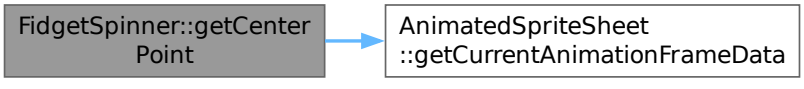
```
Point2d FidgetSpinner::getCenterPoint ( ) const
```

Definition at line 28 of file fidgetSpinner.cpp.

```
00028                                        {
00029   Point2d point{getCurrentAnimationFrameData().m_position +
00030                 getCurrentAnimationFrameData().m_size * 0.5};
00031
00032   return point;
00033 }
```

References AnimatedSpriteSheet::getCurrentAnimationFrameData(), AnimatedSpriteSheet::AnimationFrameData::m_position, and AnimatedSpriteSheet::AnimationFrameData::m_size.

Here is the call graph for this function:



8.7.4.4 getCurrentAnimationFrameCount()

```
int AnimatedSpriteSheet::getCurrentAnimationFrameCount ( ) const  [protected], [inherited]
```

Definition at line 54 of file animatedSpriteSheet.cpp.

```
00054                                                       {
00055   LOGTRACEN;
00056   return m_animationsData[m_currentAnimationTypeIndex].size();
00057 }
```

References LOGTRACEN, AnimatedSpriteSheet::m_animationsData, and AnimatedSpriteSheet::m_currentAnimationTypeIndex.

Referenced by AnimatedSpriteSheet::nextFrame().

Here is the caller graph for this function:

8.7.4.5 getCurrentAnimationFrameData()

```
const AnimatedSpriteSheet::AnimationFrameData & AnimatedSpriteSheet::getCurrentAnimation↩
FrameData ( ) const  [protected], [inherited]
```

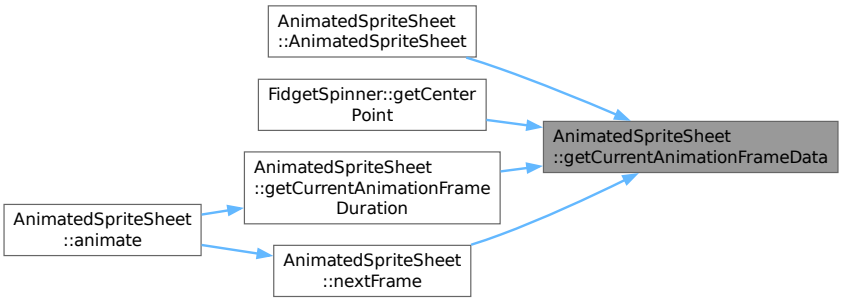
Definition at line 60 of file animatedSpriteSheet.cpp.

```
00060                                                       {
00061   LOGTRACEN;
00062   if (m_animationsData.size() == 0 ||
00063       m_animationsData.size() < m_currentAnimationTypeIndex) {
00064     LOGWARN « "No animation data\n";
00065   } else if (m_animationsData[m_currentAnimationTypeIndex].size() == 0 ||
00066              m_animationsData[m_currentAnimationTypeIndex].size() <
00067                  m_currentAnimationTypeIndex) {
00068     LOGWARN « "No frame data in animation " « m_currentAnimationTypeIndex
00069             « '\n';
00070   }
00071   return m_animationsData[m_currentAnimationTypeIndex][m_currentFrameId];
00072 }
```

References LOGTRACEN, LOGWARN, AnimatedSpriteSheet::m_animationsData, AnimatedSpriteSheet::m_currentAnimationTypeIn
and AnimatedSpriteSheet::m_currentFrameId.

Referenced by AnimatedSpriteSheet::AnimatedSpriteSheet(), getCenterPoint(), AnimatedSpriteSheet::getCurrentAnimationFrameDu
and AnimatedSpriteSheet::nextFrame().

Here is the caller graph for this function:



8.7.4.6 getCurrentAnimationFrameDuration()

```
float AnimatedSpriteSheet::getCurrentAnimationFrameDuration ( ) const  [protected], [inherited]
```

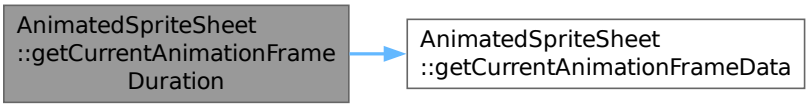
Definition at line 74 of file animatedSpriteSheet.cpp.

```
00074                                                                {
00075   LOGTRACEN;
00076   return getCurrentAnimationFrameData().m_duration;
00077 };
```

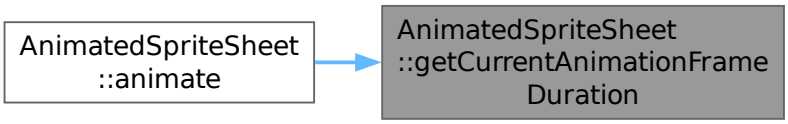
References AnimatedSpriteSheet::getCurrentAnimationFrameData(), LOGTRACEN, and AnimatedSpriteSheet::AnimationFrameData

Referenced by AnimatedSpriteSheet::animate().

Here is the call graph for this function:



Here is the caller graph for this function:



8.7.4.7 getCurrentAnimationFrameRect()

```
sf::IntRect AnimatedSpriteSheet::getCurrentAnimationFrameRect ( ) const  [protected], [inherited]
```

8.7.4.8 getPosition()

```
Point2d GameObject::getPosition ( ) const  [virtual], [inherited]
```

Object position getter.

Definition at line 7 of file GameObject.cpp.

```
00007 { return m_position; }
```

References GameObject::m_position.

8.7.4.9 loadFrame()

```
void AnimatedSpriteSheet::loadFrame (
            std::istream & stream,
            animationData_t & animationData )  [protected], [inherited]
```

load frame data from stream

Definition at line 85 of file animatedSpriteSheet.cpp.

```
00086                                                                    {
00087   LOGTRACEN;
00088   // load Frame data
00089   AnimationFrameData fdat{};
00090   stream » fdat;
00091   // LOGINFO « fdat.m_position « " " « fdat.m_size « " " «
00092   // fdat.m_duration
00093   //         « '\n';
00094
00095   // add frame data to animation
00096   animationData.push_back(fdat);
00097   stream.ignore(std::numeric_limits<std::streamsize>::max(), '\n');
00098 };
```

References LOGTRACEN.

Referenced by AnimatedSpriteSheet::loadFromConfigFile().

Here is the caller graph for this function:

8.7.4.10 loadFromConfigFile()

```
void AnimatedSpriteSheet::loadFromConfigFile (
            std::string_view pathToDir )  [protected], [inherited]
```

Definition at line 113 of file animatedSpriteSheet.cpp.

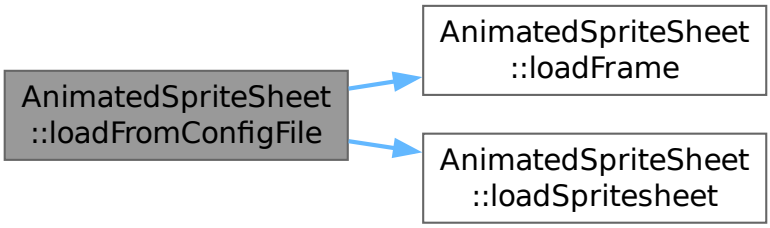
```
00113                                                                    {
00114   std::string configFilePath{static_cast<std::string>(pathToDir) +
00115                              "/config.txt"};
00116   // open file
00117   std::fstream configFile{configFilePath};
00118   if (!configFile.is_open()) {
00119     LOGERROR « "opening config file failed it should be at " « configFilePath
00120              « "\n";
00121     return;
00122   }
00123
00124   animationData_t *animationDataBeingLoaded{NULL};
00125   std::string line{};
00126
00127   while (!configFile.eof()) {
00128     line = "";
00129     // load line, ignore lines that are commnets
00130     do {
00131       std::getline(configFile, line);
00132     } while (line.starts_with("#"));
00133
00134     // load spritesheet
00135     if (line.starts_with("SPRITESHEET")) {
00136       loadSpritesheet(configFile, pathToDir);
00137     } else if (line.starts_with("ANIMATION")) {
00138       // Add new animation and change pointer
```

```
00139       //     LOGINFO « "loading animation data\n";
00140       m_animationsData.push_back({});
00141       animationDataBeingLoaded = {&m_animationsData.back()};
00142     }
00143     // load frame
00144     else if (line.starts_with("FRAME")) {
00145       if (animationDataBeingLoaded == NULL)
00146         LOGERROR « "config file is corrupted, FRAME before ANIMATION?";
00147       loadFrame(configFile, *animationDataBeingLoaded);
00148     }
00149     // not known
00150     else {
00151       // empty line ignore
00152       if (line == "") {
00153         continue;
00154       }
00155       // invalid line
00156       LOGWARN « "not recegnized config option: " « line
00157               « " in file: " « configFilePath « '\n';
00158     }
00159   }
00160   // close file
00161   configFile.close();
00162 }
```

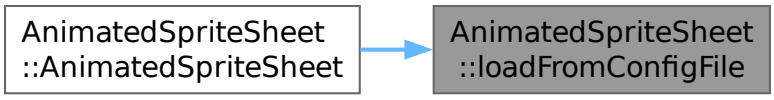
References AnimatedSpriteSheet::loadFrame(), AnimatedSpriteSheet::loadSpritesheet(), LOGERROR, LOGWARN, and AnimatedSpriteSheet::m_animationsData.

Referenced by AnimatedSpriteSheet::AnimatedSpriteSheet().

Here is the call graph for this function:



Here is the caller graph for this function:



8.7.4.11 loadSpritesheet()

```
void AnimatedSpriteSheet::loadSpritesheet (
            std::istream & stream,
            std::string_view configFileDirectoryPath )  [protected], [inherited]
```

Definition at line 100 of file animatedSpriteSheet.cpp.

```
00101                                                                {
00102     LOGINFO « "loading spritesheet data\n";
00103     std::string spriteSheetRelPath{};
00104     stream » spriteSheetRelPath;
00105     spriteSheetRelPath =
00106         std::string(configFileDirectoryPath) + "/" + spriteSheetRelPath;
00107
00108     loadFromFile(spriteSheetRelPath);
00109
00110     stream.ignore(std::numeric_limits<std::streamsize>::max(), '\n');
00111 }
```

References LOGINFO.

Referenced by AnimatedSpriteSheet::loadFromConfigFile().

Here is the caller graph for this function:

8.7.4.12 move()

```
void AnimatedObject::move (
            Point2d vector )  [virtual], [inherited]
```

Translates object in space.

Parameters

vector	2D vector added to current object position.

Reimplemented from GameObject.

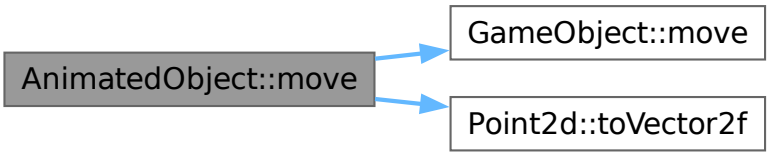
Reimplemented in Player.

Definition at line 14 of file animatedObject.cpp.

```
00014                                          {
00015     GameObject::move(vec);
00016     sf::Sprite::move(vec.toVector2f());
00017     // LOGINFO « GameObject::getPosition() « '\n';
00018 };
```

References GameObject::move(), and Point2d::toVector2f().

Here is the call graph for this function:



8.7.4.13 nextFrame()

```
void AnimatedSpriteSheet::nextFrame ( )  [protected], [inherited]
```

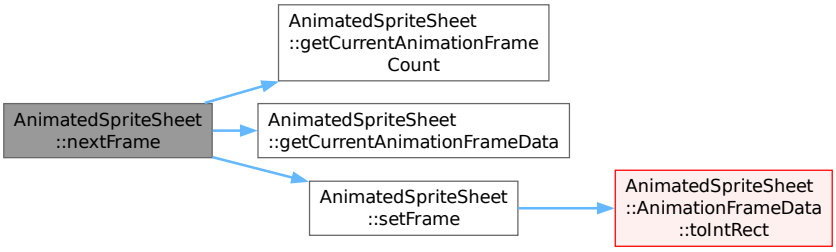
Definition at line 46 of file animatedSpriteSheet.cpp.

```
00046                                       {
00047   LOGTRACEN;
00048   // change frame
00049   ++m_currentFrameId;
00050   m_currentFrameId %= getCurrentAnimationFrameCount();
00051   setFrame(getCurrentAnimationFrameData());
00052 }
```

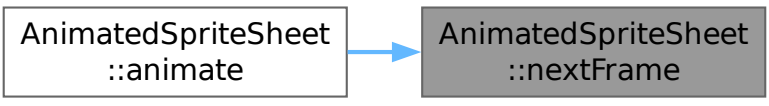
References AnimatedSpriteSheet::getCurrentAnimationFrameCount(), AnimatedSpriteSheet::getCurrentAnimationFrameData(), LOGTRACEN, AnimatedSpriteSheet::m_currentFrameId, and AnimatedSpriteSheet::setFrame().

Referenced by AnimatedSpriteSheet::animate().

Here is the call graph for this function:



Here is the caller graph for this function:



8.7.4.14 setFrame()

```
void AnimatedSpriteSheet::setFrame (
            const AnimationFrameData & frameData )  [protected], [inherited]
```

Definition at line 79 of file animatedSpriteSheet.cpp.

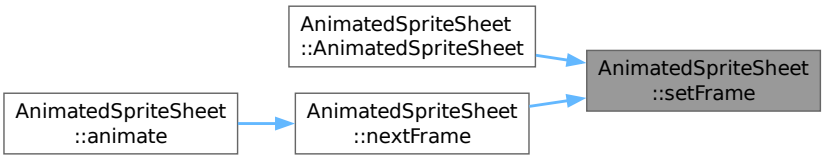
```
00079                                                                    {
00080   LOGTRACEN;
00081   setTextureRect(frameData.toIntRect());
00082   m_animationTimer = 0;
00083 }
```

References LOGTRACEN, AnimatedSpriteSheet::m_animationTimer, and AnimatedSpriteSheet::AnimationFrameData::toIntRect().

Referenced by AnimatedSpriteSheet::AnimatedSpriteSheet(), and AnimatedSpriteSheet::nextFrame().

Here is the call graph for this function:

Here is the caller graph for this function:



8.7.4.15 setPosition()

```
void AnimatedObject::setPosition (
            Point2d pos )  [virtual], [inherited]
```

Object position setter.

Parameters

pos	Position to be set.

Reimplemented from GameObject.

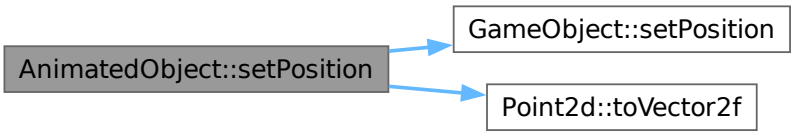
Definition at line 9 of file animatedObject.cpp.

```
00009                                           {
00010   GameObject::setPosition(pos);
00011   sf::Sprite::setPosition(pos.toVector2f());
00012 };
```

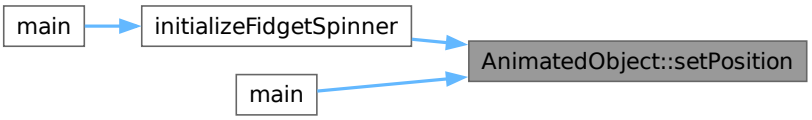
References GameObject::setPosition(), and Point2d::toVector2f().

Referenced by initializeFidgetSpinner(), and main().

Here is the call graph for this function:



Here is the caller graph for this function:



8.7.4.16 setRotationResistance()

```
void FidgetSpinner::setRotationResistance (
            float speed )
```

Definition at line 37 of file fidgetSpinner.cpp.

```
00037                                                   {
00038   m_rotationResistance = speed;
00039 }
```

References m_rotationResistance.

8.7.5 Member Data Documentation

8.7.5.1 m_angle

```
float FidgetSpinner::m_angle {}  [private]
```

Definition at line 24 of file fidgetSpinner.hpp.

```
00024 {};
```

Referenced by animate().

8.7.5.2 m_animationsData

```
std::vector<animationData_t> AnimatedSpriteSheet::m_animationsData  [private], [inherited]
```

Colecction of animations.

Definition at line 55 of file animatedSpriteSheet.hpp.

Referenced by AnimatedSpriteSheet::getCurrentAnimationFrameCount(), AnimatedSpriteSheet::getCurrentAnimationFrameData(), and AnimatedSpriteSheet::loadFromConfigFile().

8.7.5.3 m_animationTimer

```
float AnimatedSpriteSheet::m_animationTimer {}  [private], [inherited]
```

Definition at line 63 of file animatedSpriteSheet.hpp.
```
00063 {};
```

Referenced by AnimatedSpriteSheet::animate(), and AnimatedSpriteSheet::setFrame().

8.7.5.4 m_currentAnimationTypeIndex

```
int AnimatedSpriteSheet::m_currentAnimationTypeIndex  [private], [inherited]
```

Indicates index of current animation in m_animationsData.

Definition at line 60 of file animatedSpriteSheet.hpp.

Referenced by AnimatedSpriteSheet::getCurrentAnimationFrameCount(), and AnimatedSpriteSheet::getCurrentAnimationFrameData

8.7.5.5 m_currentFrameId

```
int AnimatedSpriteSheet::m_currentFrameId {}  [private], [inherited]
```

Definition at line 61 of file animatedSpriteSheet.hpp.
```
00061 {};
```

Referenced by AnimatedSpriteSheet::getCurrentAnimationFrameData(), and AnimatedSpriteSheet::nextFrame().

8.7.5.6 m_position

```
Point2d GameObject::m_position {}  [private], [inherited]
```

Position of object on screen.

Definition at line 14 of file GameObject.hpp.
```
00014 {};
```

Referenced by GameObject::getPosition(), GameObject::move(), and GameObject::setPosition().

8.7.5.7 m_rotationResistance

```
float FidgetSpinner::m_rotationResistance {0.1}  [private]
```

Definition at line 22 of file fidgetSpinner.hpp.
```
00022 {0.1};
```

Referenced by animate(), and setRotationResistance().

8.7.5.8 m_rotationspeed

```
float FidgetSpinner::m_rotationspeed {0}  [private]
```

Definition at line 23 of file fidgetSpinner.hpp.
```
00023 {0};
```

Referenced by addRotationSpeed(), and animate().

The documentation for this class was generated from the following files:

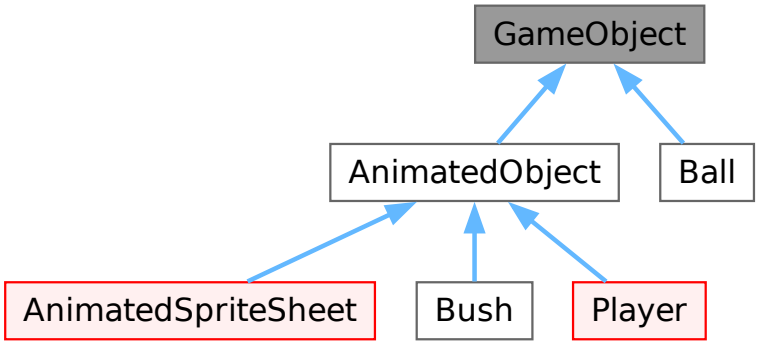
- fidgetSpinner.hpp
- fidgetSpinner.cpp

8.8 GameObject Class Reference

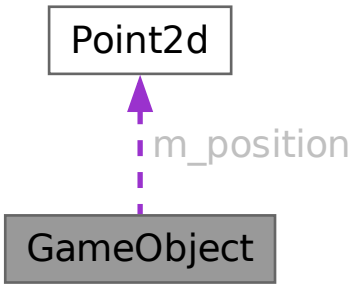
Game object class.

```
#include <GameObject.hpp>
```

Inheritance diagram for GameObject:



Collaboration diagram for GameObject:



Public Member Functions

- virtual ~GameObject ()
  Destructor.
- virtual void setPosition (Point2d pos)
  Object position setter.
- virtual Point2d getPosition () const
  Object position getter.
- virtual void move (Point2d vector)
  Translates object in space.

Private Attributes

- Point2d m_position {}
  Position of object on screen.

8.8.1 Detailed Description

Game object class.

Definition at line 9 of file GameObject.hpp.

8.8.2 Constructor & Destructor Documentation

8.8.2.1 ~GameObject()

```
virtual GameObject::~GameObject ( )  [inline], [virtual]
```

Destructor.

Definition at line 20 of file GameObject.hpp.

```
00020 {};
```

8.8.3 Member Function Documentation

8.8.3.1 getPosition()

```
Point2d GameObject::getPosition ( ) const  [virtual]
```

Object position getter.

Definition at line 7 of file GameObject.cpp.

```
00007 { return m_position; }
```

References m_position.

8.8.3.2 move()

```
void GameObject::move (
            Point2d vector )  [virtual]
```

Translates object in space.

Parameters

vector	2D vector added to current object position.

Reimplemented in AnimatedObject, Player, and Ball.

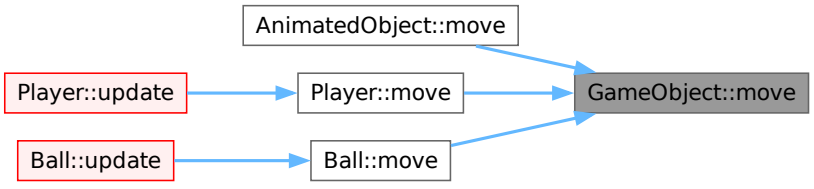
Definition at line 9 of file GameObject.cpp.

```
00009                                   {
00010   m_position += vector;
00011   // LOGINFO « vector « '\t' « m_position « '\n';
00012 }
```

References m_position.

Referenced by AnimatedObject::move(), Player::move(), and Ball::move().

Here is the caller graph for this function:



8.8.3.3 setPosition()

```
void GameObject::setPosition (
            Point2d pos )  [virtual]
```

Object position setter.

Parameters

pos	Position to be set.

Reimplemented in AnimatedObject.

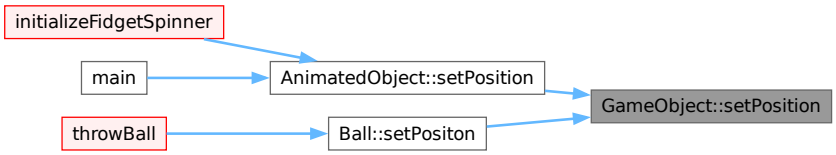
Definition at line 5 of file GameObject.cpp.

```
00005 { m_position = pos; }
```

References m_position.

Referenced by AnimatedObject::setPosition(), and Ball::setPositon().

Here is the caller graph for this function:



8.8.4 Member Data Documentation

8.8.4.1 m_position

```
Point2d GameObject::m_position {}  [private]
```

Position of object on screen.

Definition at line 14 of file GameObject.hpp.

```
00014 {};
```

Referenced by getPosition(), move(), and setPosition().

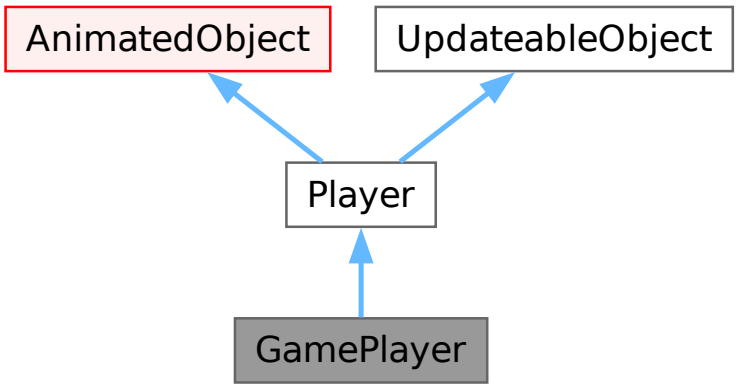
The documentation for this class was generated from the following files:

- GameObject.hpp
- GameObject.cpp

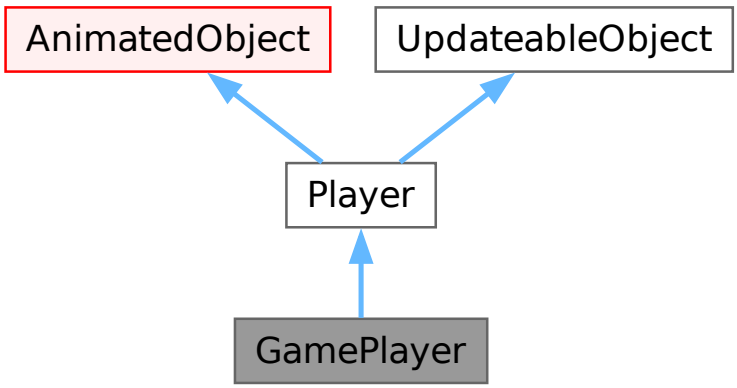
8.9 GamePlayer Class Reference

`#include <gamePlayer.hpp>`

Inheritance diagram for GamePlayer:



Collaboration diagram for GamePlayer:



Public Types

- enum class AnimationType {
  standing , moveNorth , moveEast , moveSouth ,
  moveWest , moveSpecial , count }
- enum class MoveDirection {
  north , east , south , west ,
  count }

  Directions of movement.

Public Member Functions

- GamePlayer ()
- virtual void animate () override

  Animates object.
- virtual void update () override

  Updates state of object.
- virtual void setIsMoving (MoveDirection direction)
- virtual void stopMoving (MoveDirection direction)
- void stopMoving ()

  Stops player from moving.
- bool isMoving () const

  Checks if player is moving.
- bool isMoving (MoveDirection direction) const

  Checks if player is moving in a specific direction.
- void setMovementSpeed (float speed)

  Player movement speed setter.
- virtual float getMovementSpeed () const

  Player movement speed getter.
- bool isMovingDiagonaly () const

  Checks if player is moving diagonally.
- Point2d getMoveVectorOrigin () const

  Returns a 2D vector containing information on which cardinal directions the player is moving.
- Point2d getMoveVector () const

  Returns the player's movement vector multiplied by speed.
- virtual void setPosition (Point2d pos)

  Object position setter.
- virtual Point2d getPosition () const

  Object position getter.

Static Public Attributes

- static constexpr std::string_view s_spriteSheetPath

Private Member Functions

- void nextAnimationFrame ()
- void updateTextureRect ()
- void setAnimationType (AnimationType type)
- AnimationType getAnimationTypeOf (MoveDirection moveDirection) const
- int getFrameCountOfAnimation (AnimationType type) const
- sf::IntRect getCurrentAnimationFrameSpriteRectangle () const
- int getRowOfAnimation () const
- void move (Point2d vec)

  Moves player on screen.

Private Attributes

- int m_aninmationFrameIndicator {}
- float m_animationFrameDuration {.5}
- float m_animationTimer {}
- AnimationType m_animationType {AnimationType::standing}
- float m_movementSpeed {50}

  Player movement speed.
- std::array< bool, static_cast< ssize_t >(MoveDirection::count)> m_isMoving {}

  Array with player's current movement direction.
- Point2d m_position {}

  Position of object on screen.

8.9.1 Detailed Description

Definition at line 10 of file gamePlayer.hpp.

8.9.2 Member Enumeration Documentation

8.9.2.1 AnimationType

```
enum class GamePlayer::AnimationType  [strong]
```

Enumerator

standing	
moveNorth	
moveEast	
moveSouth	
moveWest	
moveSpecial	
count	

Definition at line 15 of file gamePlayer.hpp.

```
00015                           {
00016     standing,
00017     moveNorth,
00018     moveEast,
00019     moveSouth,
00020     moveWest,
00021     moveSpecial,
00022     count
00023   };
```

8.9.2.2 MoveDirection

```
enum class Player::MoveDirection  [strong], [inherited]
```

Directions of movement.

Enumerator

north	
east	
south	
west	
count	

Definition at line 21 of file player.hpp.
```
00021 { north, east, south, west, count };
```

8.9.3 Constructor & Destructor Documentation

8.9.3.1 GamePlayer()

```
GamePlayer::GamePlayer ( )
```

Definition at line 15 of file gamePlayer.cpp.
```
00015                         {
00016   LOGINFON;
00017   loadFromFile(
00018       std::string(s_spriteSheetPath),
00019       sf::IntRect{0, 0, 4 * 300, static_cast<int>(AnimationType::count) * 300});
00020   setTexture(*this);
00021   setTextureRect(getCurrentAnimationFrameSpriteRectangle());
00022 }
```

References count, getCurrentAnimationFrameSpriteRectangle(), LOGINFON, and s_spriteSheetPath.

Here is the call graph for this function:

8.9.4 Member Function Documentation

8.9.4.1 animate()

```
void GamePlayer::animate ( )  [override], [virtual]
```

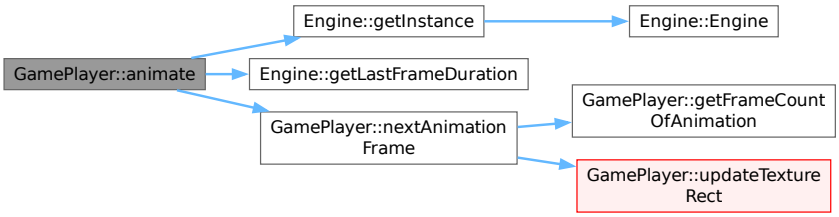
Animates object.

Reimplemented from AnimatedObject.

Definition at line 31 of file gamePlayer.cpp.
```
00031                           {
00032   m_animationTimer += Engine::getInstance().getLastFrameDuration().asSeconds();
00033   // wait for next frame change
00034   if (m_animationTimer < m_animationFrameDuration)
00035     return;
00036   // reset timer
00037   m_animationTimer = 0;
00038   // do frame changing
00039   nextAnimationFrame();
00040 }
```

References Engine::getInstance(), Engine::getLastFrameDuration(), m_animationFrameDuration, m_animationTimer, and nextAnimationFrame().

Here is the call graph for this function:



8.9.4.2 getAnimationTypeOf()

```
GamePlayer::AnimationType GamePlayer::getAnimationTypeOf (
            MoveDirection moveDirection ) const  [private]
```

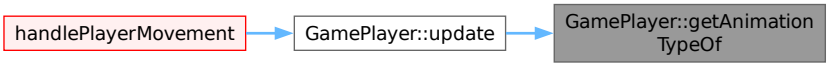
Definition at line 99 of file gamePlayer.cpp.

```
00099                                                                    {
00100   switch (moveDirection) {
00101   case Player::MoveDirection::north:
00102     return AnimationType::moveNorth;
00103   case Player::MoveDirection::east:
00104     return AnimationType::moveEast;
00105   case Player::MoveDirection::south:
00106     return AnimationType::moveSouth;
00107   case Player::MoveDirection::west:
00108     return AnimationType::moveWest;
00109   default:
00110     LOGWARN « "UNHANDLED\n";
00111     break;
00112   }
00113   return AnimationType::standing;
00114 }
```

References Player::east, LOGWARN, moveEast, moveNorth, moveSouth, moveWest, Player::north, Player::south, standing, and Player::west.

Referenced by update().

Here is the caller graph for this function:



8.9.4.3 getCurrentAnimationFrameSpriteRectangle()

```
sf::IntRect GamePlayer::getCurrentAnimationFrameSpriteRectangle ( ) const  [private]
```

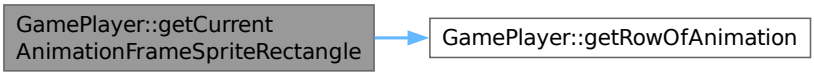
Definition at line 24 of file gamePlayer.cpp.

```
00024                                                                    {
00025   sf::IntRect result{m_aninmationFrameIndicator * 300,
00026                      getRowOfAnimation() * 300, 300, 300};
00027   // LOGINFO « result.top « '\t' « result.left « '\n';
00028   return result;
00029 }
```

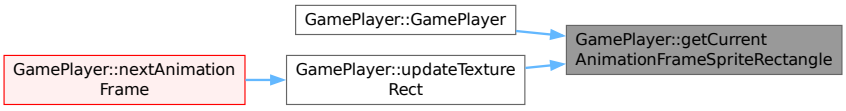
References getRowOfAnimation(), and m_aninmationFrameIndicator.

Referenced by GamePlayer(), and updateTextureRect().

Here is the call graph for this function:



Here is the caller graph for this function:



8.9.4.4 getFrameCountOfAnimation()

```
int GamePlayer::getFrameCountOfAnimation (
            AnimationType type ) const  [private]
```

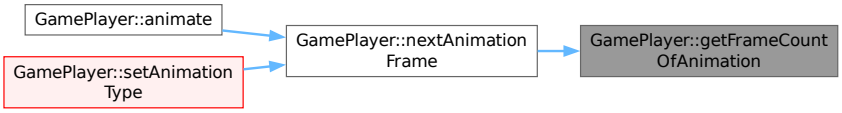
Definition at line 67 of file gamePlayer.cpp.

```
00067                                                                    {
00068   switch (type) {
00069   case AnimationType::standing:
00070     return 4;
00071   case AnimationType::moveNorth:
00072     return 4;
00073   case AnimationType::moveEast:
00074     return 4;
00075   case AnimationType::moveSouth:
00076     return 4;
00077   case AnimationType::moveWest:
00078     return 4;
00079   case AnimationType::moveSpecial:
00080     return 4;
00081   default:
00082     LOGWARN « "Animation type not handled!\n";
00083     return 0;
00084     break;
00085   }
00086 }
```

References LOGWARN, moveEast, moveNorth, moveSouth, moveSpecial, moveWest, and standing.

Referenced by nextAnimationFrame().

Here is the caller graph for this function:



8.9.4.5 getMovementSpeed()

```
float Player::getMovementSpeed ( ) const  [virtual], [inherited]
```

Player movement speed getter.

Definition at line 32 of file player.cpp.

```
00032 { return m_movementSpeed; };
```

References Player::m_movementSpeed.

8.9.4.6 getMoveVector()

```
Point2d Player::getMoveVector ( ) const  [inherited]
```

Returns the player's movement vector multiplied by speed.

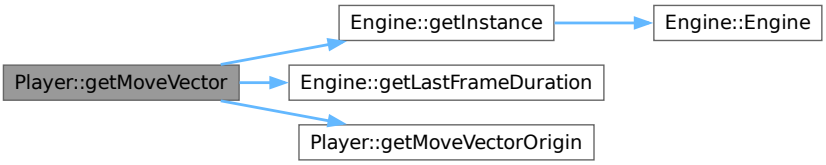
Definition at line 40 of file player.cpp.

```
00040                                    {
00041   return getMoveVectorOrigin() * m_movementSpeed *
00042          Engine::getInstance().getLastFrameDuration().asSeconds();
00043 }
```

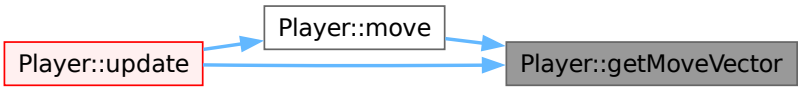
References Engine::getInstance(), Engine::getLastFrameDuration(), Player::getMoveVectorOrigin(), and Player::m_movementSpeed.

Referenced by Player::move(), and Player::update().

Here is the call graph for this function:



Here is the caller graph for this function:



8.9.4.7 getMoveVectorOrigin()

```
Point2d Player::getMoveVectorOrigin ( ) const  [inherited]
```

Returns a 2D vector containing information on which cardinal directions the player is moving.

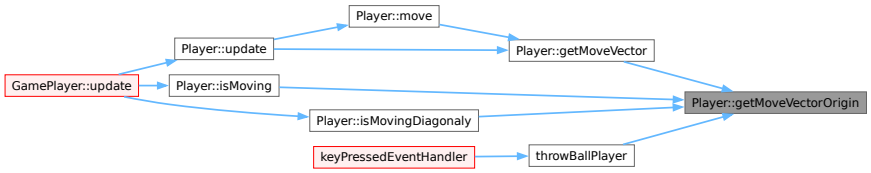
Definition at line 17 of file player.cpp.

```
00017                                          {
00018   Point2d vec{};
00019
00020   if (m_isMoving[static_cast<int>(MoveDirection::north)])
00021     vec += {0, -1};
00022   if (m_isMoving[static_cast<int>(MoveDirection::east)])
00023     vec += {1, 0};
00024   if (m_isMoving[static_cast<int>(MoveDirection::south)])
00025     vec += {0, 1};
00026   if (m_isMoving[static_cast<int>(MoveDirection::west)])
00027     vec += {-1, 0};
00028   return vec;
00029 }
```

References Player::east, Player::m_isMoving, Player::north, Player::south, and Player::west.

Referenced by Player::getMoveVector(), Player::isMoving(), Player::isMovingDiagonaly(), and throwBallPlayer().

Here is the caller graph for this function:



8.9.4.8 getPosition()

```
Point2d GameObject::getPosition ( ) const  [virtual], [inherited]
```

Object position getter.

Definition at line 7 of file GameObject.cpp.

```
00007 { return m_position; }
```

References GameObject::m_position.

8.9.4.9 getRowOfAnimation()

```
int GamePlayer::getRowOfAnimation ( ) const  [private]
```

Definition at line 128 of file gamePlayer.cpp.

```
00128                                          {
00129   switch (m_animationType) {
00130   case AnimationType::standing:
00131     return 0;
00132   case AnimationType::moveNorth:
00133     return 1;
00134   case AnimationType::moveEast:
00135     return 2;
00136   case AnimationType::moveSouth:
```

```
00137     return 3;
00138   case AnimationType::moveWest:
00139     return 4;
00140   case AnimationType::moveSpecial:
00141     return 5;
00142   default:
00143     LOGWARN « "not handled\n";
00144     return 0;
00145   };
00146 };
```

References LOGWARN, m_animationType, moveEast, moveNorth, moveSouth, moveSpecial, moveWest, and standing.

Referenced by getCurrentAnimationFrameSpriteRectangle().

Here is the caller graph for this function:

8.9.4.10 isMoving() [1/2]

```
bool Player::isMoving ( ) const  [inherited]
```

Checks if player is moving.

Definition at line 53 of file player.cpp.

```
00053                           {
00054   bool moving{};
00055   return getMoveVectorOrigin() != Point2d{0, 0};
00056 }
```

References Player::getMoveVectorOrigin().

Referenced by update().

Here is the call graph for this function:

Here is the caller graph for this function:

8.9.4.11 isMoving() [2/2]

```
bool Player::isMoving (
            MoveDirection direction ) const  [inherited]
```

Checks if player is moving in a specific direction.

Parameters

direction	Direction checked.

Definition at line 58 of file player.cpp.

```
00058                                                {
00059   return m_isMoving[static_cast<ssize_t>(direction)];
00060 }
```

References Player::m_isMoving.

8.9.4.12 isMovingDiagonaly()

```
bool Player::isMovingDiagonaly ( ) const  [inherited]
```

Checks if player is moving diagonally.

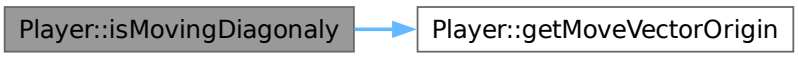
Definition at line 34 of file player.cpp.

```
00034                                    {
00035   Point2d vec{getMoveVectorOrigin()};
00036   auto absMoveDist{std::abs(vec.getX()) + std::abs(vec.getY())};
00037   return absMoveDist > 1;
00038 }
```

References Player::getMoveVectorOrigin().

Referenced by update().

Here is the call graph for this function:



Here is the caller graph for this function:

8.9.4.13 move()

```
void Player::move (
            Point2d vec )  [private], [virtual], [inherited]
```

Moves player on screen.

Parameters

vec	Vector by which player is moved.

Reimplemented from AnimatedObject.

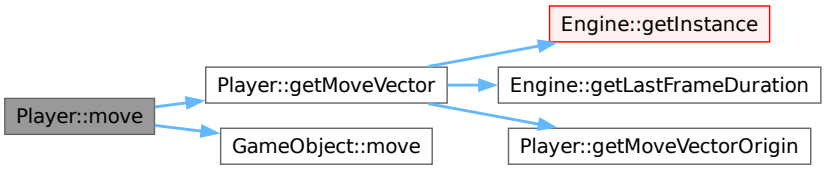
Definition at line 11 of file player.cpp.

```
00011                                {
00012   GameObject::move(vec);
00013   sf::Sprite::move(getMoveVector().toVector2f());
00014   // LOGINFO « GameObject::getPosition() « '\n';
00015 };
```

References Player::getMoveVector(), and GameObject::move().

Referenced by Player::update().

Here is the call graph for this function:



Here is the caller graph for this function:

8.9.4.14 nextAnimationFrame()

```
void GamePlayer::nextAnimationFrame ( )  [private]
```

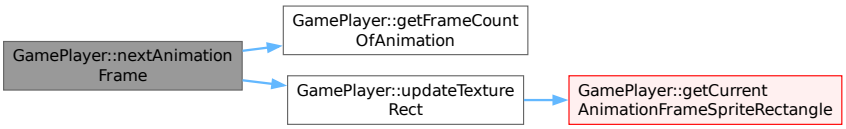
Definition at line 116 of file gamePlayer.cpp.

```
00116                                    {
00117   updateTextureRect();
00118   ++m_aninmationFrameIndicator;
00119   m_aninmationFrameIndicator %= getFrameCountOfAnimation(m_animationType);
00120   // LOGINFO « "Frame: " « m_aninmationFrameIndicator
00121   //         « " Type: " « static_cast<int>(m_animationType) « '\n';
00122 };
```

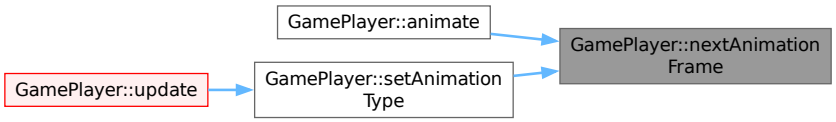
References getFrameCountOfAnimation(), m_animationType, m_aninmationFrameIndicator, and updateTextureRect().

Referenced by animate(), and setAnimationType().

Here is the call graph for this function:



Here is the caller graph for this function:



8.9.4.15 setAnimationType()

```
void GamePlayer::setAnimationType (
            GamePlayer::AnimationType type )  [private]
```

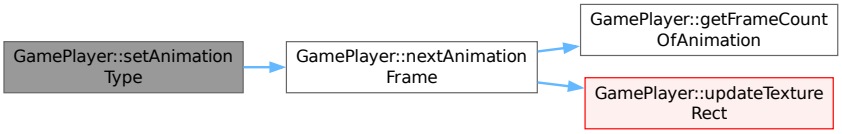
Definition at line 88 of file gamePlayer.cpp.

```
00088                                                       {
00089   // Do no reset current animation if new is same.
00090   if (type == m_animationType)
00091     return;
00092   m_animationType = type;
00093   m_aninmationFrameIndicator = 0;
00094   m_animationTimer = 0;
00095   nextAnimationFrame();
00096 };
```

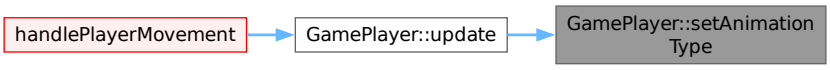
References m_animationTimer, m_animationType, m_aninmationFrameIndicator, and nextAnimationFrame().

Referenced by update().

Here is the call graph for this function:



Here is the caller graph for this function:



8.9.4.16 setIsMoving()

```
void Player::setIsMoving (
            MoveDirection direction )  [virtual], [inherited]
```

Parameters

direction	

Definition at line 45 of file player.cpp.

```
00045                                                {
00046   m_isMoving[static_cast<ssize_t>(direction)] = true;
00047 };
```

References Player::m_isMoving.

Referenced by keyPressedEventHandler().

Here is the caller graph for this function:

8.9.4.17 setMovementSpeed()

```
void Player::setMovementSpeed (
            float speed )  [inherited]
```

Player movement speed setter.

Definition at line 31 of file player.cpp.

```
00031 { m_movementSpeed = speed; }
```

References Player::m_movementSpeed.

Referenced by initialziePlayer().

Here is the caller graph for this function:

8.9.4.18 setPosition()

```
void AnimatedObject::setPosition (
            Point2d pos )  [virtual], [inherited]
```

Object position setter.

Parameters

pos	Position to be set.

Reimplemented from GameObject.

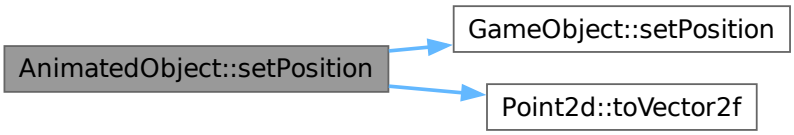
Definition at line 9 of file animatedObject.cpp.

```
00009                                                {
00010   GameObject::setPosition(pos);
00011   sf::Sprite::setPosition(pos.toVector2f());
00012 };
```

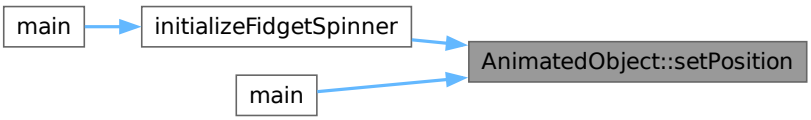
References GameObject::setPosition(), and Point2d::toVector2f().

Referenced by initializeFidgetSpinner(), and main().

Here is the call graph for this function:



Here is the caller graph for this function:



8.9.4.19 stopMoving() [1/2]

```
void Player::stopMoving ( )  [inherited]
```

Stops player from moving.

Definition at line 62 of file player.cpp.

```
00062                           {
00063   for (auto &it : m_isMoving) {
00064     it = false;
00065   }
00066 }
```

References Player::m_isMoving.

8.9.4.20 stopMoving() [2/2]

```
void Player::stopMoving (
            MoveDirection direction )  [virtual], [inherited]
```

Parameters

direction	

Definition at line 49 of file player.cpp.

```
00049                                                {
00050   m_isMoving[static_cast<ssize_t>(direction)] = false;
00051 }
```

References Player::m_isMoving.

Referenced by keyReleasedEventHandler().

Here is the caller graph for this function:

8.9.4.21 update()

```
void GamePlayer::update ( )  [override], [virtual]
```

Updates state of object.

Reimplemented from Player.

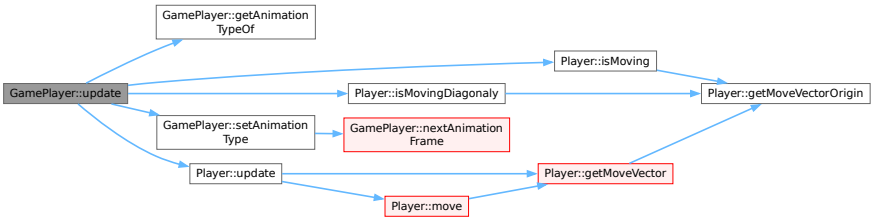
Definition at line 42 of file gamePlayer.cpp.

```
00042                              {
00043   Player::update();
00044
00045   // Handle animation update
00046   AnimationType animation = AnimationType::standing;
00047
00048   if (isMoving()) {
00049     // if is moving diagonally
00050     if (isMovingDiagonaly()) {
00051       animation = AnimationType::moveSpecial;
00052     } else {
00053       // check if is moving in any single direction
00054       for (int i{}; i < static_cast<int>(MoveDirection::count); ++i) {
00055         MoveDirection moveDir{static_cast<MoveDirection>(i)};
00056         if (isMoving(moveDir)) {
00057           animation = getAnimationTypeOf(moveDir);
00058           break;
00059         }
00060       }
00061     }
00062   }
00063
00064   setAnimationType(animation);
00065 }
```

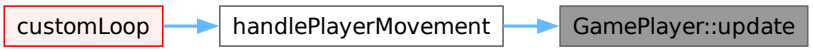
References animation, Player::count, getAnimationTypeOf(), Player::isMoving(), Player::isMovingDiagonaly(), moveSpecial, setAnimationType(), standing, and Player::update().

Referenced by handlePlayerMovement().

Here is the call graph for this function:



Here is the caller graph for this function:



8.9.4.22 updateTextureRect()

```
void GamePlayer::updateTextureRect ( )  [private]
```

Definition at line 124 of file gamePlayer.cpp.

```
00124                                   {
00125   this->setTextureRect(getCurrentAnimationFrameSpriteRectangle());
00126 }
```

References getCurrentAnimationFrameSpriteRectangle().

Referenced by nextAnimationFrame().

Here is the call graph for this function:

Here is the caller graph for this function:

8.9.5 Member Data Documentation

8.9.5.1 m_animationFrameDuration

```
float GamePlayer::m_animationFrameDuration {.5}  [private]
```

Definition at line 33 of file gamePlayer.hpp.
```
00033 {.5};
```

Referenced by animate().

8.9.5.2 m_animationTimer

```
float GamePlayer::m_animationTimer {}  [private]
```

Definition at line 34 of file gamePlayer.hpp.
```
00034 {};
```

Referenced by animate(), and setAnimationType().

8.9.5.3 m_animationType

```
AnimationType GamePlayer::m_animationType {AnimationType::standing}  [private]
```

Definition at line 35 of file gamePlayer.hpp.
```
00035 {AnimationType::standing};
```

Referenced by getRowOfAnimation(), nextAnimationFrame(), and setAnimationType().

8.9.5.4 m_aninmationFrameIndicator

```
int GamePlayer::m_aninmationFrameIndicator {}  [private]
```

Definition at line 32 of file gamePlayer.hpp.
```
00032 {};
```

Referenced by getCurrentAnimationFrameSpriteRectangle(), nextAnimationFrame(), and setAnimationType().

8.9.5.5 m_isMoving

```
std::array<bool, static_cast<ssize_t>(MoveDirection::count)> Player::m_isMoving {}  [private],
[inherited]
```

Array with player's current movement direction.

Definition at line 31 of file player.hpp.
```
00031 {};
```

Referenced by Player::getMoveVectorOrigin(), Player::isMoving(), Player::setIsMoving(), Player::stopMoving(), and Player::stopMoving().

8.9.5.6 m_movementSpeed

```
float Player::m_movementSpeed {50}  [private], [inherited]
```

Player movement speed.

Definition at line 27 of file player.hpp.
```
00027 {50};
```

Referenced by Player::getMovementSpeed(), Player::getMoveVector(), and Player::setMovementSpeed().

8.9.5.7 m_position

```
Point2d GameObject::m_position {}  [private], [inherited]
```

Position of object on screen.

Definition at line 14 of file GameObject.hpp.
```
00014 {};
```

Referenced by GameObject::getPosition(), GameObject::move(), and GameObject::setPosition().

8.9.5.8 s_spriteSheetPath

```
constexpr std::string_view GamePlayer::s_spriteSheetPath  [static], [constexpr]
```

Initial value:
```
{
      "resource/player/spritesheet.png"}
```

Definition at line 12 of file gamePlayer.hpp.
```
00012                                                 {
00013       "resource/player/spritesheet.png"};
```

Referenced by GamePlayer().

The documentation for this class was generated from the following files:

- gamePlayer.hpp
- gamePlayer.cpp

8.10 obstacle::LineSegment Class Reference

```
#include <lineSegment.hpp>
```

Public Member Functions

- LineSegment (Point2d start, Point2d end, sf::Color color={})
- void draw () const
- Point2d getStart () const
- Point2d getEnd () const
- void setStart (Point2d val)
- void setEnd (Point2d val)
- void setColor (sf::Color color)

Private Attributes

- sf::Vertex m_points [2] = {}
- sf::Color m_color

8.10.1 Detailed Description

Definition at line 14 of file lineSegment.hpp.

8.10.2 Constructor & Destructor Documentation

8.10.2.1 LineSegment()

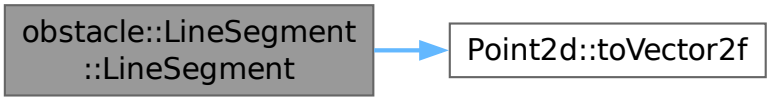
```
obstacle::LineSegment::LineSegment (
            Point2d start,
            Point2d end,
            sf::Color color = {} )
```

Definition at line 15 of file lineSegment.cpp.

```
00016     : m_points{{start.toVector2f(), color}, {end.toVector2f(), color}},
00017       m_color{color} {};
```

References Point2d::toVector2f().

Here is the call graph for this function:



8.10.3 Member Function Documentation

8.10.3.1 draw()

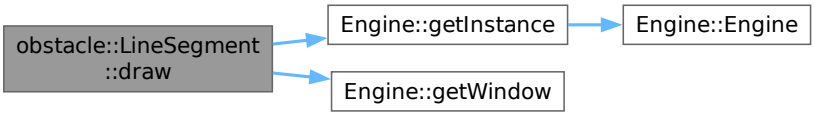
```
void obstacle::LineSegment::draw ( ) const
```

Definition at line 19 of file lineSegment.cpp.

```
00019                                {
00020   Engine::getInstance().getWindow().draw(m_points, 2, sf::Lines);
00021 }
```

References Engine::getInstance(), and Engine::getWindow().

Here is the call graph for this function:



8.10.3.2 getEnd()

```
Point2d obstacle::LineSegment::getEnd ( ) const
```

Definition at line 24 of file lineSegment.cpp.

```
00024 { return Point2d{m_points[1].position}; }
```

8.10.3.3 getStart()

```
Point2d obstacle::LineSegment::getStart ( ) const
```

Definition at line 23 of file lineSegment.cpp.

```
00023 { return Point2d{m_points[0].position}; }
```

8.10.3.4 setColor()

```
void obstacle::LineSegment::setColor (
            sf::Color color )  [inline]
```

Definition at line 29 of file lineSegment.hpp.

```
00029 { m_color = color; };
```

References m_color.

8.10.3.5 setEnd()

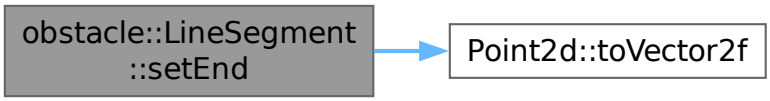
```
void obstacle::LineSegment::setEnd (
            Point2d val )
```

Definition at line 29 of file lineSegment.cpp.

```
00029                                       {
00030   m_points[1].position = val.toVector2f();
00031 }
```

References Point2d::toVector2f().

Here is the call graph for this function:



8.10.3.6 setStart()

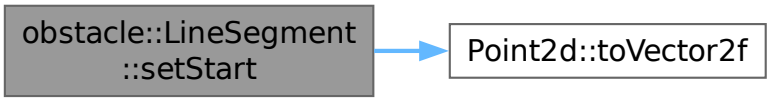
```
void obstacle::LineSegment::setStart (
            Point2d val )
```

Definition at line 26 of file lineSegment.cpp.

```
00026                                       {
00027   m_points[0].position = val.toVector2f();
00028 }
```

References Point2d::toVector2f().

Here is the call graph for this function:



8.10.4 Member Data Documentation

8.10.4.1 m_color

```
sf::Color obstacle::LineSegment::m_color  [private]
```

Definition at line 16 of file lineSegment.hpp.

Referenced by setColor().

8.10.4.2 m_points

```
sf::Vertex obstacle::LineSegment::m_points[2] = {}  [private]
```

Definition at line 15 of file lineSegment.hpp.

```
00015 {};
```

The documentation for this class was generated from the following files:

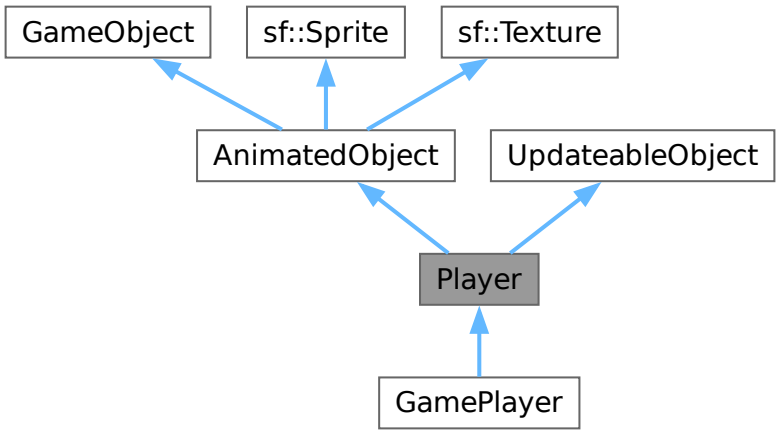
- lineSegment.hpp
- lineSegment.cpp

8.11 Player Class Reference

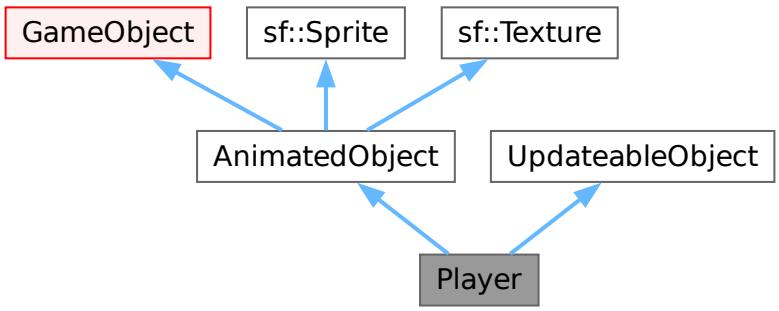
Player class.

`#include <player.hpp>`

Inheritance diagram for Player:



Collaboration diagram for Player:



Public Types

- enum class MoveDirection { north , east , south , west , count }

  Directions of movement.

Public Member Functions

- virtual ~Player ()

  Destructor.
- virtual void setIsMoving (MoveDirection direction)
- virtual void stopMoving (MoveDirection direction)
- void stopMoving ()

  Stops player from moving.
- bool isMoving () const

  Checks if player is moving.
- bool isMoving (MoveDirection direction) const

  Checks if player is moving in a specific direction.
- void setMovementSpeed (float speed)

  Player movement speed setter.
- virtual float getMovementSpeed () const

  Player movement speed getter.
- bool isMovingDiagonaly () const

  Checks if player is moving diagonally.
- Point2d getMoveVectorOrigin () const

  Returns a 2D vector containing information on which cardinal directions the player is moving.
- Point2d getMoveVector () const

  Returns the player's movement vector multiplied by speed.
- virtual void update ()

  Updates state of object.
- virtual void setPosition (Point2d pos)

  Object position setter.
- virtual void animate ()

  Animates object.
- virtual Point2d getPosition () const

  Object position getter.

Private Member Functions

- void move (Point2d vec)

  Moves player on screen.

Private Attributes

- float m_movementSpeed {50}

  Player movement speed.
- std::array< bool, static_cast< ssize_t >(MoveDirection::count)> m_isMoving {}

  Array with player's current movement direction.
- Point2d m_position {}

  Position of object on screen.

8.11.1 Detailed Description

Player class.

Definition at line 16 of file player.hpp.

8.11.2 Member Enumeration Documentation

8.11.2.1 MoveDirection

```
enum class Player::MoveDirection  [strong]
```

Directions of movement.

Enumerator

north	
east	
south	
west	
count	

Definition at line 21 of file player.hpp.
```
00021 { north, east, south, west, count };
```

8.11.3 Constructor & Destructor Documentation

8.11.3.1 ~Player()

```
Player::~Player ( )  [virtual]
```

Destructor.

Definition at line 9 of file player.cpp.
```
00009 {};
```

8.11.4 Member Function Documentation

8.11.4.1 animate()

```
void AnimatedObject::animate ( )  [virtual], [inherited]
```

Animates object.

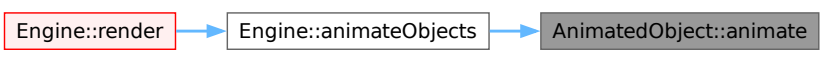
Reimplemented in Bush, AnimatedSpriteSheet, FidgetSpinner, and GamePlayer.

Definition at line 5 of file animatedObject.cpp.
```
00005                                {
00006   LOGWARN « "Not overloaded " « this « '\n';
00007 };
```

References LOGWARN.

Referenced by Engine::animateObjects().

Here is the caller graph for this function:



8.11.4.2 getMovementSpeed()

```
float Player::getMovementSpeed ( ) const  [virtual]
```

Player movement speed getter.

Definition at line 32 of file player.cpp.

```
00032 { return m_movementSpeed; };
```

References m_movementSpeed.

8.11.4.3 getMoveVector()

```
Point2d Player::getMoveVector ( ) const
```

Returns the player's movement vector multiplied by speed.

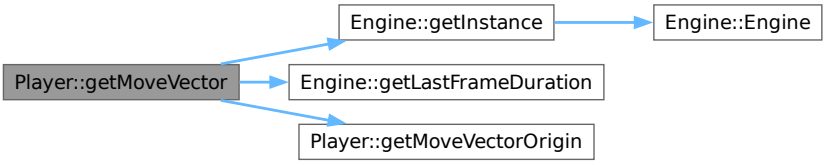
Definition at line 40 of file player.cpp.

```
00040                                    {
00041   return getMoveVectorOrigin() * m_movementSpeed *
00042          Engine::getInstance().getLastFrameDuration().asSeconds();
00043 }
```

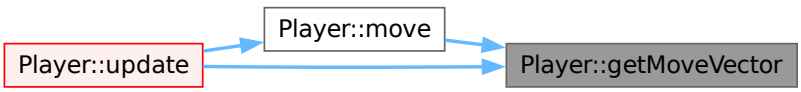
References Engine::getInstance(), Engine::getLastFrameDuration(), getMoveVectorOrigin(), and m_movementSpeed.

Referenced by move(), and update().

Here is the call graph for this function:



Here is the caller graph for this function:



8.11.4.4 getMoveVectorOrigin()

```
Point2d Player::getMoveVectorOrigin ( ) const
```

Returns a 2D vector containing information on which cardinal directions the player is moving.

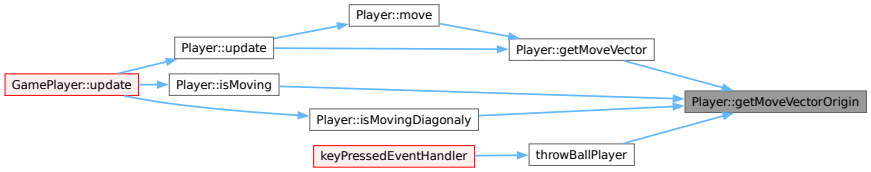
Definition at line 17 of file player.cpp.

```
00017                                       {
00018   Point2d vec{};
00019
00020   if (m_isMoving[static_cast<int>(MoveDirection::north)])
00021     vec += {0, -1};
00022   if (m_isMoving[static_cast<int>(MoveDirection::east)])
00023     vec += {1, 0};
00024   if (m_isMoving[static_cast<int>(MoveDirection::south)])
00025     vec += {0, 1};
00026   if (m_isMoving[static_cast<int>(MoveDirection::west)])
00027     vec += {-1, 0};
00028   return vec;
00029 }
```

References east, m_isMoving, north, south, and west.

Referenced by getMoveVector(), isMoving(), isMovingDiagonaly(), and throwBallPlayer().

Here is the caller graph for this function:



8.11.4.5 getPosition()

```
Point2d GameObject::getPosition ( ) const  [virtual], [inherited]
```

Object position getter.

Definition at line 7 of file GameObject.cpp.

```
00007 { return m_position; }
```

References GameObject::m_position.

8.11.4.6 isMoving() [1/2]

```
bool Player::isMoving ( ) const
```

Checks if player is moving.

Definition at line 53 of file player.cpp.

```
00053                                {
00054   bool moving{};
00055   return getMoveVectorOrigin() != Point2d{0, 0};
00056 }
```

References getMoveVectorOrigin().

Referenced by GamePlayer::update().

Here is the call graph for this function:

Here is the caller graph for this function:

8.11.4.7 isMoving() [2/2]

```
bool Player::isMoving (
            MoveDirection direction ) const
```

Checks if player is moving in a specific direction.

Parameters

direction	Direction checked.

Definition at line 58 of file player.cpp.

```
00058                                                   {
00059   return m_isMoving[static_cast<ssize_t>(direction)];
00060 }
```

References m_isMoving.

8.11.4.8 isMovingDiagonaly()

```
bool Player::isMovingDiagonaly ( ) const
```

Checks if player is moving diagonally.

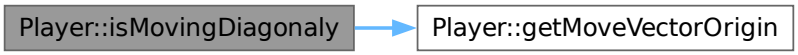
Definition at line 34 of file player.cpp.

```
00034                                       {
00035   Point2d vec{getMoveVectorOrigin()};
00036   auto absMoveDist{std::abs(vec.getX()) + std::abs(vec.getY())};
00037   return absMoveDist > 1;
00038 }
```

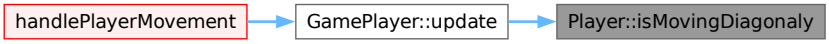
References getMoveVectorOrigin().

Referenced by GamePlayer::update().

Here is the call graph for this function:



Here is the caller graph for this function:



8.11.4.9 move()

```
void Player::move (
            Point2d vec )  [private], [virtual]
```

Moves player on screen.

Parameters

vec	Vector by which player is moved.

Reimplemented from AnimatedObject.

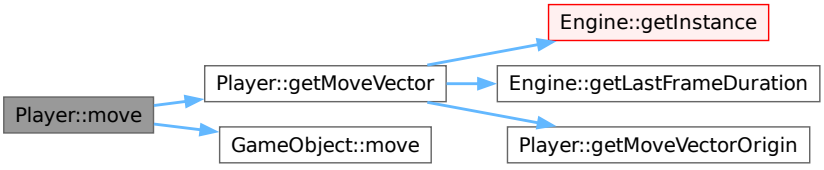
Definition at line 11 of file player.cpp.

```
00011                                {
00012   GameObject::move(vec);
00013   sf::Sprite::move(getMoveVector().toVector2f());
00014   // LOGINFO « GameObject::getPosition() « '\n';
00015 };
```

References getMoveVector(), and GameObject::move().

Referenced by update().

Here is the call graph for this function:



Here is the caller graph for this function:

8.11.4.10 setIsMoving()

```
void Player::setIsMoving (
            MoveDirection direction )  [virtual]
```

Parameters

direction	

Definition at line 45 of file player.cpp.

```
00045                                                {
00046     m_isMoving[static_cast<ssize_t>(direction)] = true;
00047 };
```

References m_isMoving.

Referenced by keyPressedEventHandler().

Here is the caller graph for this function:

8.11.4.11 setMovementSpeed()

```
void Player::setMovementSpeed (
            float speed )
```

Player movement speed setter.

Definition at line 31 of file player.cpp.

```
00031 { m_movementSpeed = speed; }
```

References m_movementSpeed.

Referenced by initialziePlayer().

Here is the caller graph for this function:

8.11.4.12 setPosition()

```
void AnimatedObject::setPosition (
            Point2d pos )  [virtual], [inherited]
```

Object position setter.

Parameters

pos	Position to be set.

Reimplemented from GameObject.

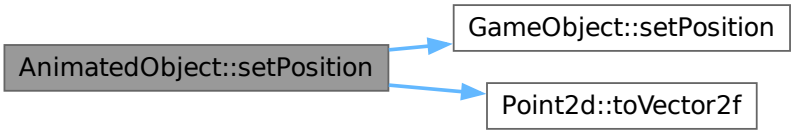
Definition at line 9 of file animatedObject.cpp.

```
00009                                           {
00010   GameObject::setPosition(pos);
00011   sf::Sprite::setPosition(pos.toVector2f());
00012 };
```

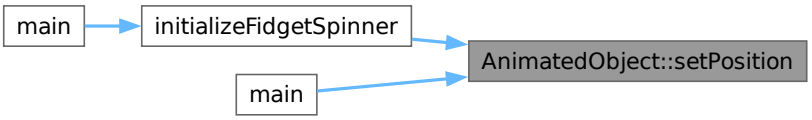
References GameObject::setPosition(), and Point2d::toVector2f().

Referenced by initializeFidgetSpinner(), and main().

Here is the call graph for this function:



Here is the caller graph for this function:



8.11.4.13 stopMoving() [1/2]

```
void Player::stopMoving ( )
```

Stops player from moving.

Definition at line 62 of file player.cpp.

```
00062                           {
00063   for (auto &it : m_isMoving) {
00064     it = false;
00065   }
00066 }
```

References m_isMoving.

8.11.4.14 stopMoving() [2/2]

```
void Player::stopMoving (
            MoveDirection direction )  [virtual]
```

Parameters

direction	

Definition at line 49 of file player.cpp.

```
00049                                                {
00050   m_isMoving[static_cast<ssize_t>(direction)] = false;
00051 }
```

References m_isMoving.

Referenced by keyReleasedEventHandler().

Here is the caller graph for this function:

8.11.4.15 update()

```
void Player::update ( )  [virtual]
```

Updates state of object.

Implements UpdateableObject.

Reimplemented in GamePlayer.

Definition at line 68 of file player.cpp.

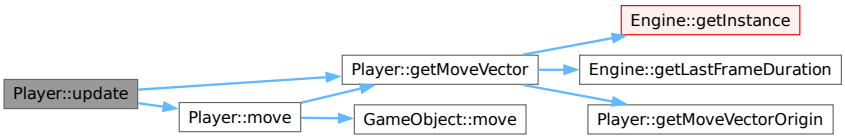
```
00068                       {
00069   Point2d vec = getMoveVector();
```

```
00070     move(vec);
00071 };
```

References getMoveVector(), and move().

Referenced by GamePlayer::update().

Here is the call graph for this function:



Here is the caller graph for this function:

8.11.5 Member Data Documentation

8.11.5.1 m_isMoving

```
std::array<bool, static_cast<ssize_t>(MoveDirection::count)> Player::m_isMoving {}  [private]
```

Array with player's current movement direction.

Definition at line 31 of file player.hpp.
```
00031 {};
```

Referenced by getMoveVectorOrigin(), isMoving(), setIsMoving(), stopMoving(), and stopMoving().

8.11.5.2 m_movementSpeed

```
float Player::m_movementSpeed {50}  [private]
```

Player movement speed.

Definition at line 27 of file player.hpp.
```
00027 {50};
```

Referenced by getMovementSpeed(), getMoveVector(), and setMovementSpeed().

8.11.5.3 m_position

```
Point2d GameObject::m_position {}  [private], [inherited]
```

Position of object on screen.

Definition at line 14 of file GameObject.hpp.
```
00014 {};
```

Referenced by GameObject::getPosition(), GameObject::move(), and GameObject::setPosition().

The documentation for this class was generated from the following files:

- player.hpp
- player.cpp

8.12 Point2d Class Reference

Class containing 2D point co-ordinates.

```
#include <point2d.hpp>
```

Public Types

- using cordinate_t = float

Public Member Functions

- Point2d (cordinate_t x=0, cordinate_t y=0)
  Constructor.
- Point2d (const Point2d &point)=default
  Copy constructor.
- Point2d (const sf::Vector2f &vector)
  Constructor.
- Point2d (const sf::Vector2i &vector)
- cordinate_t getX () const
  X co-ordinate getter.
- cordinate_t getY () const
  Y co-ordinate getter.
- void setX (cordinate_t x)
  X co-ordinate setter.
- void setY (cordinate_t y)
  Y co-ordinate setter.
- void swap (Point2d &b)
  Swaps co-ordinates with another point.
- sf::Vector2f toVector2f () const
  Convert to Vector2f.
- cordinate_t length () const
  Get length of vector.
- cordinate_t distanceTo (const Point2d &point) const
  Get distance between two points.

Private Attributes

- cordinate_t m_x

  X co-ordinate of the point.
- cordinate_t m_y

  Y co-ordinate of the point.

Friends

- Point2d operator+ (const Point2d &a, const Point2d &b)
- Point2d & operator+= (Point2d &a, const Point2d &b)
- Point2d operator- (const Point2d &a, const Point2d &b)
- bool operator== (const Point2d &a, const Point2d &b)
- bool operator!= (const Point2d &a, const Point2d &b)
- Point2d operator∗ (const Point2d &a, float b)
- Point2d operator∗ (float b, const Point2d &a)
- std::ostream & operator<< (std::ostream &os, const Point2d &point)
- std::istream & operator>> (std::istream &is, Point2d &point)

8.12.1 Detailed Description

Class containing 2D point co-ordinates.

Definition at line 9 of file point2d.hpp.

8.12.2 Member Typedef Documentation

8.12.2.1 cordinate_t

```
using Point2d::cordinate_t = float
```

Definition at line 11 of file point2d.hpp.

8.12.3 Constructor & Destructor Documentation

8.12.3.1 Point2d() [1/4]

```
Point2d::Point2d (
            cordinate_t x = 0,
            cordinate_t y = 0 )
```

Constructor.

Parameters

x	X co-ordinate of point.
y	Y co-ordinate of point.

Definition at line 10 of file point2d.cpp.
```
00010 : m_x(x), m_y(y){};
```

8.12.3.2 Point2d() [2/4]

```
Point2d::Point2d (
            const Point2d & point )  [default]
```

Copy constructor.

Parameters

point	Instance of class Point2d.

8.12.3.3 Point2d() [3/4]

```
Point2d::Point2d (
            const sf::Vector2f & vector )  [explicit]
```

Constructor.

Parameters

vector	2D vector.

Definition at line 11 of file point2d.cpp.
```
00011 : m_x{vector.x}, m_y{vector.y} {};
```

8.12.3.4 Point2d() [4/4]

```
Point2d::Point2d (
            const sf::Vector2i & vector )  [explicit]
```

Definition at line 12 of file point2d.cpp.
```
00013     : m_x{static_cast<cordinate_t>(vector.x)},
00014       m_y{static_cast<cordinate_t>(vector.y)} {};
```

8.12.4 Member Function Documentation

8.12.4.1 distanceTo()

```
Point2d::cordinate_t Point2d::distanceTo (
            const Point2d & point ) const
```

Get distance between two points.

Parameters

point	Point to which distance is calculated.

Definition at line 77 of file point2d.cpp.

```
00077                                                    {
00078   return (*this - point).length();
00079 };
```

8.12.4.2 getX()

```
Point2d::cordinate_t Point2d::getX ( ) const
```

X co-ordinate getter.

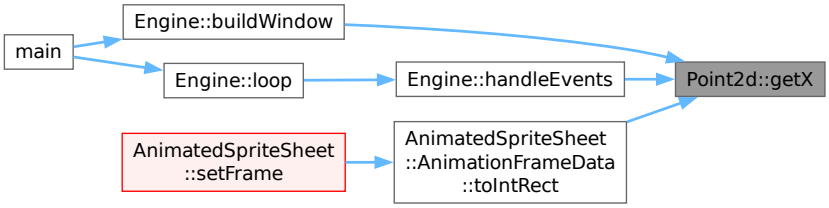
Definition at line 54 of file point2d.cpp.

```
00054 { return m_x; };
```

References m_x.

Referenced by Engine::buildWindow(), Engine::handleEvents(), and AnimatedSpriteSheet::AnimationFrameData::toIntRect().

Here is the caller graph for this function:



8.12.4.3 getY()

```
Point2d::cordinate_t Point2d::getY ( ) const
```

Y co-ordinate getter.

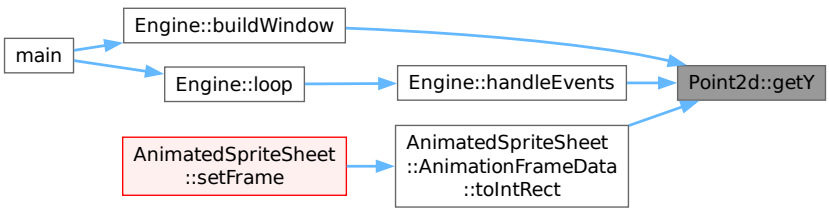
Definition at line 55 of file point2d.cpp.

```
00055 { return m_y; };
```

References m_y.

Referenced by Engine::buildWindow(), Engine::handleEvents(), and AnimatedSpriteSheet::AnimationFrameData::toIntRect().

Here is the caller graph for this function:



8.12.4.4 length()

```
Point2d::cordinate_t Point2d::length ( ) const
```

Get length of vector.

Definition at line 72 of file point2d.cpp.

```
00072                                           {
00073   return std::sqrt((m_x * m_x) + (m_y * m_y));
00074   return length();
00075 }
```

References length(), m_x, and m_y.

Referenced by length().

Here is the call graph for this function:

Here is the caller graph for this function:

8.12.4.5 setX()

```
void Point2d::setX (
            cordinate_t x )
```

X co-ordinate setter.

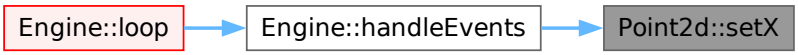
Definition at line 57 of file point2d.cpp.

```
00057 { m_x = x; };
```

References m_x.

Referenced by Engine::handleEvents().

Here is the caller graph for this function:



8.12.4.6 setY()

```
void Point2d::setY (
            cordinate_t y )
```

Y co-ordinate setter.

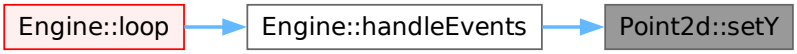
Definition at line 58 of file point2d.cpp.

```
00058 { m_y = y; };
```

References m_y.

Referenced by Engine::handleEvents().

Here is the caller graph for this function:



8.12.4.7 swap()

```
void Point2d::swap (
            Point2d & b )
```

Swaps co-ordinates with another point.

Parameters

b	Point to swap co-ordinates with.

Definition at line 63 of file point2d.cpp.

```
00063                                {
00064     std::swap(m_x, b.m_x);
00065     std::swap(m_y, b.m_y);
00066 }
```

References m_x, and m_y.

8.12.4.8 toVector2f()

```
sf::Vector2f Point2d::toVector2f ( ) const
```

Convert to Vector2f.

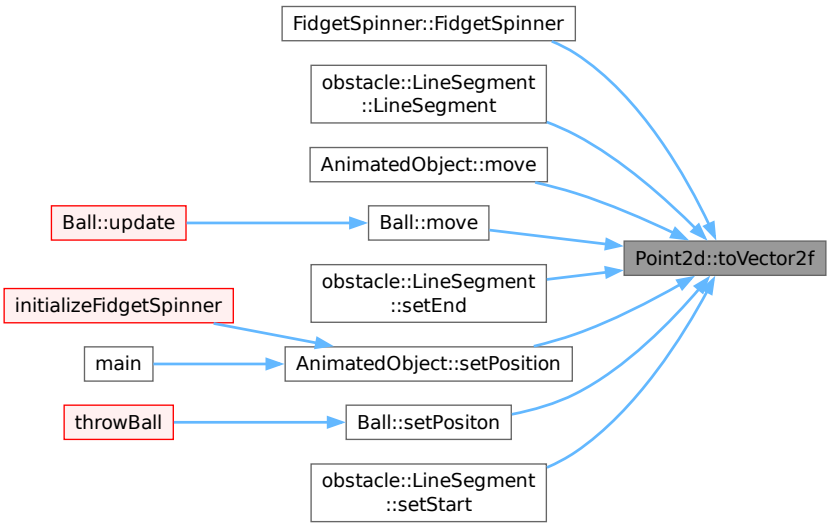
Definition at line 68 of file point2d.cpp.

```
00068                                   {
00069   return {static_cast<float>(m_x), static_cast<float>(m_y)};
00070 }
```

References m_x, and m_y.

Referenced by FidgetSpinner::FidgetSpinner(), obstacle::LineSegment::LineSegment(), AnimatedObject::move(), Ball::move(), obstacle::LineSegment::setEnd(), AnimatedObject::setPosition(), Ball::setPositon(), and obstacle::LineSegment::setStart

Here is the caller graph for this function:



8.12.5 Friends And Related Symbol Documentation

8.12.5.1 operator"!=

```
bool operator!= (
            const Point2d & a,
            const Point2d & b )  [friend]
```

Definition at line 50 of file point2d.cpp.

```
00050                                                 {
00051   return !operator==(a, b);
00052 }
```

8.12.5.2 operator* [1/2]

```
Point2d operator* (
            const Point2d & a,
            float b )  [friend]
```

Definition at line 29 of file point2d.cpp.

```
00029                                                {
00030   return {a.getX() * b, a.getY() * b};
00031 };
```

8.12.5.3 operator* [2/2]

```
Point2d operator* (
            float b,
            const Point2d & a )  [friend]
```

Definition at line 33 of file point2d.cpp.

```
00033 { return operator*(a, b); }
```

8.12.5.4 operator+

```
Point2d operator+ (
            const Point2d & a,
            const Point2d & b )  [friend]
```

Definition at line 16 of file point2d.cpp.

```
00016                                                    {
00017   return {a.m_x + b.m_x, a.m_y + b.m_y};
00018 }
```

8.12.5.5 operator+=

```
Point2d & operator+= (
            Point2d & a,
            const Point2d & b )  [friend]
```

Definition at line 20 of file point2d.cpp.

```
00020                                                    {
00021   a = a + b;
00022   return a;
00023 }
```

8.12.5.6 operator-

```
Point2d operator- (
            const Point2d & a,
            const Point2d & b )  [friend]
```

Definition at line 25 of file point2d.cpp.

```
00025                                                    {
00026   return operator+(a, -1 * b);
00027 }
```

8.12.5.7 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const Point2d & point )  [friend]
```

Definition at line 35 of file point2d.cpp.

```
00035                                                                 {
00036   os « "Point2d(" « point.m_x « ", " « point.m_y « ")";
00037   return os;
00038 }
```

8.12.5.8 operator==

```
bool operator== (
            const Point2d & a,
            const Point2d & b )  [friend]
```

Definition at line 46 of file point2d.cpp.

```
00046                                                                  {
00047   return a.getX() == b.getX() && a.getY() == b.getY();
00048 }
```

8.12.5.9 operator>>

```
std::istream & operator>> (
            std::istream & is,
            Point2d & point )  [friend]
```

Definition at line 40 of file point2d.cpp.

```
00040                                                                 {
00041   is » point.m_x;
00042   is » point.m_y;
00043   return is;
00044 }
```

8.12.6 Member Data Documentation

8.12.6.1 m_x

```
cordinate_t Point2d::m_x  [private]
```

X co-ordinate of the point.

Definition at line 17 of file point2d.hpp.

Referenced by getX(), length(), setX(), swap(), and toVector2f().

8.12.6.2 m_y

```
cordinate_t Point2d::m_y  [private]
```

Y co-ordinate of the point.

Definition at line 21 of file point2d.hpp.

Referenced by getY(), length(), setY(), swap(), and toVector2f().

The documentation for this class was generated from the following files:

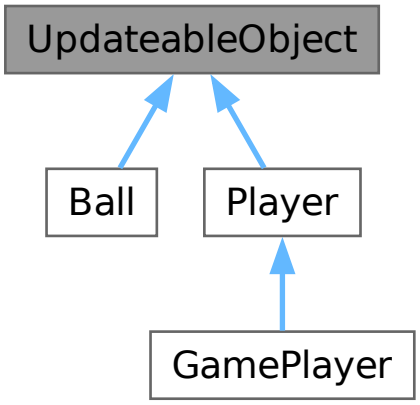
- point2d.hpp
- point2d.cpp

8.13 UpdateableObject Class Reference

Updateable object class.

`#include <updateableObject.hpp>`

Inheritance diagram for UpdateableObject:



Public Member Functions

- virtual void update ()=0
  Updates state of object.

8.13.1 Detailed Description

Updateable object class.

Definition at line 6 of file updateableObject.hpp.

8.13.2 Member Function Documentation

8.13.2.1 update()

```
virtual void UpdateableObject::update ( )  [pure virtual]
```

Updates state of object.

Implemented in Player, Ball, and GamePlayer.

The documentation for this class was generated from the following file:

- updateableObject.hpp

Chapter 9

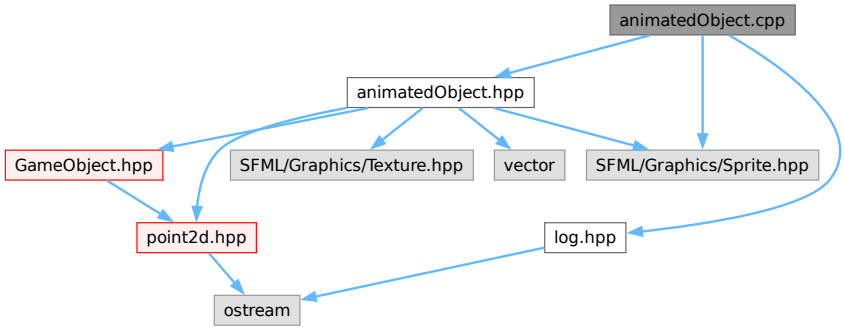
File Documentation

9.1 README.md File Reference

9.2 animatedObject.cpp File Reference

```
#include "animatedObject.hpp"
#include "SFML/Graphics/Sprite.hpp"
#include "log.hpp"
```

Include dependency graph for animatedObject.cpp:



9.3 animatedObject.cpp

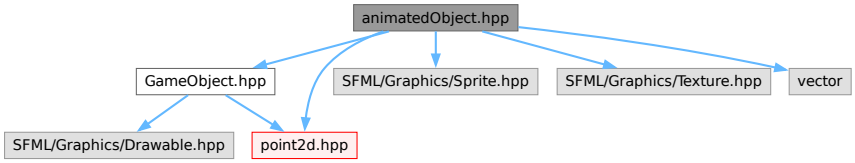
Go to the documentation of this file.

```
00001 #include "animatedObject.hpp"
00002 #include "SFML/Graphics/Sprite.hpp"
00003 #include "log.hpp"
00004
00005 void AnimatedObject::animate() {
00006   LOGWARN « "Not overloaded " « this « '\n';
00007 };
00008
00009 void AnimatedObject::setPosition(Point2d pos) {
00010   GameObject::setPosition(pos);
00011   sf::Sprite::setPosition(pos.toVector2f());
00012 };
00013
00014 void AnimatedObject::move(Point2d vec) {
00015   GameObject::move(vec);
00016   sf::Sprite::move(vec.toVector2f());
00017   // LOGINFO « GameObject::getPosition() « '\n';
00018 };
```

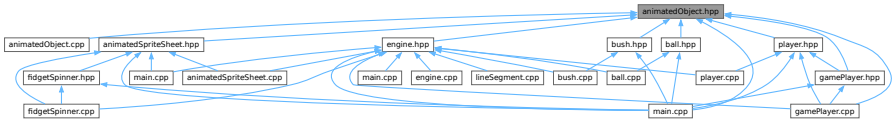
9.4 animatedObject.hpp File Reference

```
#include "GameObject.hpp"
#include "SFML/Graphics/Sprite.hpp"
#include "SFML/Graphics/Texture.hpp"
#include "point2d.hpp"
#include <vector>
```

Include dependency graph for animatedObject.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class AnimatedObject

  Animated object class.

9.5 animatedObject.hpp

Go to the documentation of this file.

```
00001 #ifndef ANIMATEDOBJECT_H_
00002 #define ANIMATEDOBJECT_H_
00003
00004 #include "GameObject.hpp"
00005 #include "SFML/Graphics/Sprite.hpp"
00006 #include "SFML/Graphics/Texture.hpp"
00007 #include "point2d.hpp"
00008 #include <vector>
00009
00013 class AnimatedObject : public GameObject,
00014                        public sf::Sprite,
00015                        public sf::Texture {
00016
00017 public:
00021   virtual ~AnimatedObject(){};
00026   virtual void setPosition(Point2d pos);
00030   virtual void animate();
00031
00032   virtual void move(Point2d vec);
00033
00034 private:
00035 };
00036
00037 #endif // ANIMATEDOBJECT_H_
```

9.6 animatedSpriteSheet.cpp File Reference

```
#include "animatedSpriteSheet.hpp"
#include "engine.hpp"
#include "log.hpp"
#include <fstream>
#include <functional>
#include <iostream>
#include <limits>
#include <string>
#include <string_view>
```

Include dependency graph for animatedSpriteSheet.cpp:

Functions

- std::istream & operator>> (std::istream &is, AnimatedSpriteSheet::AnimationFrameData &afd)

9.6.1 Function Documentation

9.6.1.1 operator>>()

```
std::istream & operator>> (
            std::istream & is,
            AnimatedSpriteSheet::AnimationFrameData & afd )
```

Definition at line 11 of file animatedSpriteSheet.cpp.

```
00012                                                                    {
00013   LOGTRACEN;
00014   is » afd.m_position;
00015   is » afd.m_size;
00016   is » afd.m_duration;
00017   return is;
00018 }
```

9.7 animatedSpriteSheet.cpp

Go to the documentation of this file.

```
00001 #include "animatedSpriteSheet.hpp"
00002 #include "engine.hpp"
00003 #include "log.hpp"
00004 #include <fstream>
00005 #include <functional>
00006 #include <iostream>
00007 #include <limits>
00008 #include <string>
00009 #include <string_view>
00010
00011 std::istream &operator»(std::istream &is,
00012                         AnimatedSpriteSheet::AnimationFrameData &afd) {
00013   LOGTRACEN;
00014   is » afd.m_position;
00015   is » afd.m_size;
00016   is » afd.m_duration;
```

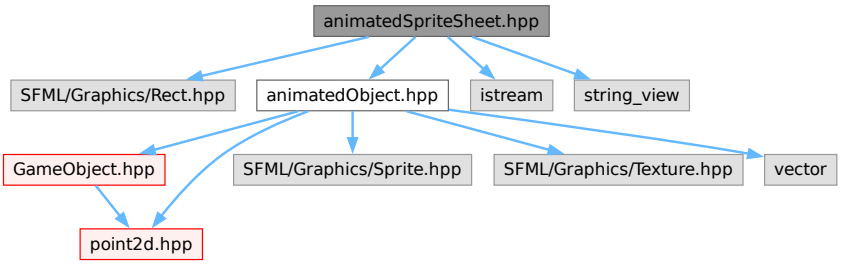
```
00017   return is;
00018 }
00019
00020 sf::IntRect AnimatedSpriteSheet::AnimationFrameData::toIntRect() const {
00021   LOGTRACEN;
00022   return {static_cast<int>(m_position.getX()),
00023           static_cast<int>(m_position.getY()), static_cast<int>(m_size.getX()),
00024           static_cast<int>(m_size.getY())};
00025 }
00026
00027 AnimatedSpriteSheet::AnimatedSpriteSheet(std::string_view path) {
00028   std::string pathh{std::string(path) + "/spritesheet.png"};
00029   LOGINFO « pathh « '\n';
00030   loadFromConfigFile(path);
00031
00032   setTexture(*this);
00033   setFrame(getCurrentAnimationFrameData());
00034   // setFrame(getCurrentAnimationFrameData());
00035 };
00036
00037 void AnimatedSpriteSheet::animate() {
00038   LOGTRACEN;
00039   m_animationTimer += Engine::getInstance().getLastFrameDuration().asSeconds();
00040   // if duration of frame not exhaused do nothing;
00041   if (m_animationTimer < getCurrentAnimationFrameDuration())
00042     return;
00043   nextFrame();
00044 }
00045
00046 void AnimatedSpriteSheet::nextFrame() {
00047   LOGTRACEN;
00048   // change frame
00049   ++m_currentFrameId;
00050   m_currentFrameId %= getCurrentAnimationFrameCount();
00051   setFrame(getCurrentAnimationFrameData());
00052 }
00053
00054 int AnimatedSpriteSheet::getCurrentAnimationFrameCount() const {
00055   LOGTRACEN;
00056   return m_animationsData[m_currentAnimationTypeIndex].size();
00057 }
00058
00059 const AnimatedSpriteSheet::AnimationFrameData &
00060 AnimatedSpriteSheet::getCurrentAnimationFrameData() const {
00061   LOGTRACEN;
00062   if (m_animationsData.size() == 0 ||
00063       m_animationsData.size() < m_currentAnimationTypeIndex) {
00064     LOGWARN « "No animation data\n";
00065   } else if (m_animationsData[m_currentAnimationTypeIndex].size() == 0 ||
00066              m_animationsData[m_currentAnimationTypeIndex].size() <
00067                  m_currentAnimationTypeIndex) {
00068     LOGWARN « "No frame data in animation " « m_currentAnimationTypeIndex
00069             « '\n';
00070   }
00071   return m_animationsData[m_currentAnimationTypeIndex][m_currentFrameId];
00072 }
00073
00074 float AnimatedSpriteSheet::getCurrentAnimationFrameDuration() const {
00075   LOGTRACEN;
00076   return getCurrentAnimationFrameData().m_duration;
00077 };
00078
00079 void AnimatedSpriteSheet::setFrame(const AnimationFrameData &frameData) {
00080   LOGTRACEN;
00081   setTextureRect(frameData.toIntRect());
00082   m_animationTimer = 0;
00083 }
00084
00085 void AnimatedSpriteSheet::loadFrame(std::istream &stream,
00086                                     animationData_t &animationData) {
00087   LOGTRACEN;
00088   // load Frame data
00089   AnimationFrameData fdat{};
00090   stream » fdat;
00091   // LOGINFO « fdat.m_position « " " « fdat.m_size « " " «
00092   // fdat.m_duration
00093   //         « '\n';
00094
00095   // add frame data to animation
00096   animationData.push_back(fdat);
00097   stream.ignore(std::numeric_limits<std::streamsize>::max(), '\n');
00098 };
00099
00100 void AnimatedSpriteSheet::loadSpritesheet(
00101     std::istream &stream, std::string_view configFileDirectoryPath) {
00102   LOGINFO « "loading spritesheet data\n";
00103   std::string spriteSheetRelPath{};
```

```
00104   stream » spriteSheetRelPath;
00105   spriteSheetRelPath =
00106       std::string(configFileDirectoryPath) + "/" + spriteSheetRelPath;
00107
00108   loadFromFile(spriteSheetRelPath);
00109
00110   stream.ignore(std::numeric_limits<std::streamsize>::max(), '\n');
00111 }
00112
00113 void AnimatedSpriteSheet::loadFromConfigFile(std::string_view pathToDir) {
00114   std::string configFilePath{static_cast<std::string>(pathToDir) +
00115                              "/config.txt"};
00116   // open file
00117   std::fstream configFile{configFilePath};
00118   if (!configFile.is_open()) {
00119     LOGERROR « "opening config file failed it should be at " « configFilePath
00120              « "\n";
00121     return;
00122   }
00123
00124   animationData_t *animationDataBeingLoaded{NULL};
00125   std::string line{};
00126
00127   while (!configFile.eof()) {
00128     line = "";
00129     // load line, ignore lines that are commnets
00130     do {
00131       std::getline(configFile, line);
00132     } while (line.starts_with("#"));
00133
00134     // load spritesheet
00135     if (line.starts_with("SPRITESHEET")) {
00136       loadSpritesheet(configFile, pathToDir);
00137     } else if (line.starts_with("ANIMATION")) {
00138       // Add new animation and change pointer
00139       //     LOGINFO « "loading animation data\n";
00140       m_animationsData.push_back({});
00141       animationDataBeingLoaded = {&m_animationsData.back()};
00142     }
00143     // load frame
00144     else if (line.starts_with("FRAME")) {
00145       if (animationDataBeingLoaded == NULL)
00146         LOGERROR « "config file is corrupted, FRAME before ANIMATION?";
00147       loadFrame(configFile, *animationDataBeingLoaded);
00148     }
00149     // not known
00150     else {
00151       // empty line ignore
00152       if (line == "") {
00153         continue;
00154       }
00155       // invalid line
00156       LOGWARN « "not recegnized config option: " « line
00157               « " in file: " « configFilePath « '\n';
00158     }
00159   }
00160   // close file
00161   configFile.close();
00162 }
```

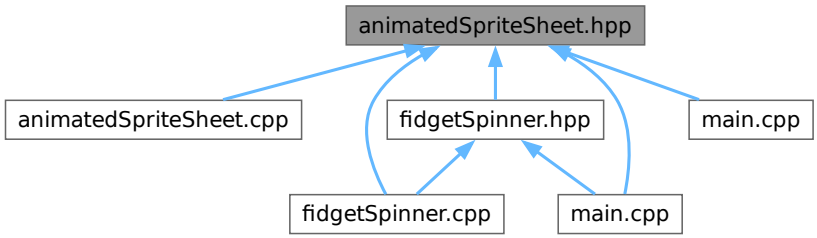
9.8 animatedSpriteSheet.hpp File Reference

```
#include "SFML/Graphics/Rect.hpp"
#include "animatedObject.hpp"
#include <istream>
#include <string_view>
```

Include dependency graph for animatedSpriteSheet.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class AnimatedSpriteSheet
- struct AnimatedSpriteSheet::AnimationFrameData

9.9 animatedSpriteSheet.hpp

Go to the documentation of this file.

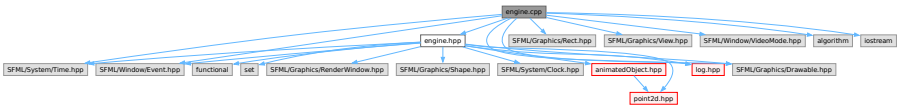
```
00001 #ifndef ANIMATEDSPRITESHEET_H_
00002 #define ANIMATEDSPRITESHEET_H_
00003
00004 #include "SFML/Graphics/Rect.hpp"
00005 #include "animatedObject.hpp"
00006 #include <istream>
00007 #include <string_view>
00008 class AnimatedSpriteSheet : public AnimatedObject {
00009
00010 public:
00011   struct AnimationFrameData {
00012     //** Duration of frame */
00013     float m_duration;
00014     //** size of sprite  */
00015     Point2d m_size;
00016     //** position of sprite */
00017     Point2d m_position;
00018
00019     friend std::istream &operator»(std::istream &is, AnimationFrameData &afd);
00020
00021     sf::IntRect toIntRect() const;
00022   };
00023
```

```
00024   using animationData_t = std::vector<AnimationFrameData>;
00025
00026 public:
00027   AnimatedSpriteSheet(std::string_view path);
00028
00029   virtual void animate() override;
00030
00031 protected:
00032   int getCurrentAnimationFrameCount() const;
00033   sf::IntRect getCurrentAnimationFrameRect() const;
00034   float getCurrentAnimationFrameDuration() const;
00035   const AnimationFrameData &getCurrentAnimationFrameData() const;
00036
00037 protected:
00038   void nextFrame();
00039   void setFrame(const AnimationFrameData &frameData);
00040
00044   void loadFrame(std::istream &stream, animationData_t &animationData);
00045
00046   void loadSpritesheet(std::istream &stream,
00047                        std::string_view configFileDirectoryPath);
00048
00049   void loadFromConfigFile(std::string_view pathToDir);
00050
00051 private:
00055   std::vector<animationData_t> m_animationsData;
00056
00060   int m_currentAnimationTypeIndex;
00061   int m_currentFrameId{};
00062
00063   float m_animationTimer{};
00064 };
00065
00066 #endif // ANIMATEDSPRITESHEET_H_
```

9.10 engine.cpp File Reference

```
#include "engine.hpp"
#include "SFML/Graphics/Drawable.hpp"
#include "SFML/Graphics/Rect.hpp"
#include "SFML/Graphics/View.hpp"
#include "SFML/System/Time.hpp"
#include "SFML/Window/Event.hpp"
#include "SFML/Window/VideoMode.hpp"
#include "log.hpp"
#include <algorithm>
#include <iostream>
```

Include dependency graph for engine.cpp:



9.11 engine.cpp

Go to the documentation of this file.

```
00001 #include "engine.hpp"
00002 #include "SFML/Graphics/Drawable.hpp"
00003 #include "SFML/Graphics/Rect.hpp"
00004 #include "SFML/Graphics/View.hpp"
00005 #include "SFML/System/Time.hpp"
00006 #include "SFML/Window/Event.hpp"
00007 #include "SFML/Window/VideoMode.hpp"
00008 #include "log.hpp"
00009 #include <algorithm>
```

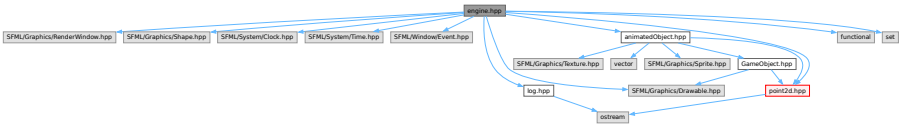
```
00010 #include <iostream>
00011
00012 Engine *Engine::s_instancePtr{nullptr};
00013
00014 Engine::Engine() {
00015   LOGINFON;
00017   m_eventHandlers.fill([](const sf::Event &event) {});
00018 }
00019
00020 Engine::~Engine() {
00021   LOGINFON;
00022   for (sf::Drawable *it : m_drawablesCollection) {
00023     delete it;
00024   }
00025   for (AnimatedObject *it : m_animatedObjectsCollection) {
00026     delete it;
00027   }
00028 }
00029
00030 Engine &Engine::getInstance() {
00031   if (s_instancePtr == nullptr)
00032     s_instancePtr = new Engine;
00033   return *s_instancePtr;
00034 }
00035
00036 Engine &Engine::setMaxFps(int fps) {
00037   LOGINFON;
00038   m_maxFPS = fps;
00039   m_window.setFramerateLimit(fps);
00040   return getInstance();
00041 }
00042
00043 Engine &Engine::setWindowTitle(std::string_view title) {
00044   m_windowTitle = title;
00045   return getInstance();
00046 }
00047
00048 Engine &Engine::setResolution(Point2d resolution) {
00049   m_resoltuon = resolution;
00050   return getInstance();
00051 }
00052
00053 Engine &Engine::buildWindow() {
00054   LOGINFON;
00055   m_window.create({static_cast<unsigned int>(m_resoltuon.getX()),
00056                    static_cast<unsigned int>(m_resoltuon.getY())},
00057                   m_windowTitle);
00058   m_window.setFramerateLimit(m_maxFPS);
00059   return getInstance();
00060 }
00061
00062 Engine &Engine::setEventHandler(sf::Event::EventType eventType,
00063                                 eventHandler_t handler) {
00064   m_eventHandlers[eventType] = handler;
00065   return *this;
00066 }
00067
00068 Point2d Engine::getResolution() const { return m_resoltuon; }
00069
00070 void Engine::handleEvents() {
00071   sf::Event event;
00072   while (m_window.pollEvent(event)) {
00073     if (event.type == sf::Event::Closed)
00074       m_window.close();
00075     if (event.type == sf::Event::Resized) {
00076
00077       // Update engine info
00078       m_resoltuon.setX(event.size.width);
00079       m_resoltuon.setY(event.size.height);
00080       // make new view
00081       sf::FloatRect view{0, 0, static_cast<float>(m_resoltuon.getX()),
00082                          static_cast<float>(m_resoltuon.getY())};
00083       m_window.setView(sf::View{view});
00084
00085       LOGINFO « "Resized\t" « event.size.width « '\t' « event.size.height
00086               « '\n';
00087     }
00088
00089     // Fire custom event handler.
00090     m_eventHandlers[event.type](event);
00091   }
00092 }
00093
00094 void Engine::clear() { m_window.clear(); }
00095
00096 void Engine::render() {
00097   animateObjects();
```

```
00098   drawDrawables();
00099 }
00100
00101 void Engine::display() { m_window.display(); }
00102
00103 void Engine::loop() {
00104   LOGINFON;
00105
00106   while (m_window.isOpen()) {
00107     clear();
00108     handleEvents();
00109
00110     // restart clock
00111     m_lastFrameDuration = m_clock.restart();
00112
00113     m_loopFunction();
00114
00115     render();
00116     display();
00117   }
00118 }
00119
00120 Engine::RenderWindow &Engine::getWindow() { return m_window; }
00121
00122 void Engine::add(Drawable *drawable) {
00123   LOGINFO « drawable « '\n';
00124   m_drawablesCollection.insert(drawable);
00125 }
00126
00127 void Engine::add(AnimatedObject *animatedObject) {
00128   LOGINFO « animatedObject « '\n';
00129   m_animatedObjectsCollection.insert(animatedObject);
00130 }
00131
00132 void Engine::remove(Engine::Drawable *drawable) {
00133   m_drawablesCollection.erase(drawable);
00134 }
00135
00136 Engine::Time Engine::getLastFrameDuration() const {
00137   return m_lastFrameDuration;
00138 }
00139
00140 void Engine::drawDrawables() {
00141   for (auto &it : m_drawablesCollection)
00142     getWindow().draw(*it);
00143 }
00144
00145 void Engine::animateObjects() {
00146   for (auto it : m_animatedObjectsCollection) {
00147     it->animate();
00148     getWindow().draw(*it);
00149   }
00150 }
```

9.12 engine.hpp File Reference

```
#include "SFML/Graphics/RenderWindow.hpp"
#include "SFML/Graphics/Shape.hpp"
#include "SFML/System/Clock.hpp"
#include "SFML/System/Time.hpp"
#include "SFML/Window/Event.hpp"
#include "animatedObject.hpp"
#include "log.hpp"
#include "point2d.hpp"
#include <SFML/Graphics/Drawable.hpp>
#include <functional>
#include <set>
```

Include dependency graph for engine.hpp:



This graph shows which files directly or indirectly include this file:

Classes

- class Engine

  The engine class.

9.13 engine.hpp

Go to the documentation of this file.

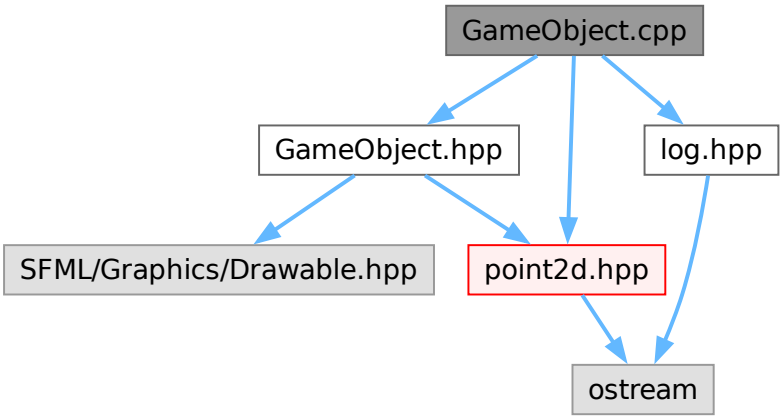
```
00001 #ifndef ENGINE_HPP_
00002 #define ENGINE_HPP_
00003
00004 #include "SFML/Graphics/RenderWindow.hpp"
00005 #include "SFML/Graphics/Shape.hpp"
00006 #include "SFML/System/Clock.hpp"
00007 #include "SFML/System/Time.hpp"
00008 #include "SFML/Window/Event.hpp"
00009 #include "animatedObject.hpp"
00010 #include "log.hpp"
00011 #include "point2d.hpp"
00012 #include <SFML/Graphics/Drawable.hpp>
00013 #include <functional>
00014 #include <set>
00015
00018 class Engine {
00019 public:
00020   using Time = sf::Time;
00021   using Clock = sf::Clock;
00022   using RenderWindow = sf::RenderWindow;
00023   using Event = sf::Event;
00024   using Drawable = sf::Drawable;
00025   using Shape = sf::Shape;
00026
00027   using eventHandler_t = std::function<void(const Event &)>;
00028   using drawableCollection_t = std::set<Drawable *>;
00029   using animatedObjecsCollection_t = std::set<AnimatedObject *>;
00030
00031 private:
00034   static Engine *s_instancePtr;
00035
00038   std::function<void()> m_loopFunction{[]() {}};
00039
00042   RenderWindow m_window{};
00045   Point2d m_resoltuon{1000, 800};
00048   std::string m_windowTitle{"dev"};
00052   int m_maxFPS{60};
00053
00057   std::array<eventHandler_t, Event::Count> m_eventHandlers;
00058
00062   drawableCollection_t m_drawablesCollection{};
00063
00064   animatedObjecsCollection_t m_animatedObjectsCollection{};
00065
```

```
00068   Clock m_clock{};
00069
00073   Time m_lastFrameDuration{};
00074
00075 public:
00079   Engine();
00083   ~Engine();
00084
00087   static Engine &getInstance();
00088
00092   Engine &setMaxFps(int fps);
00093
00097   Engine &setWindowTitle(std::string_view title);
00098
00102   Engine &setResolution(Point2d resolution);
00103
00106   Engine &setResolution(Point2d::cordinate_t x, Point2d::cordinate_t y) {
00107     setResolution({x, y});
00108     return *this;
00109   };
00110
00114   Engine &setLoopFunction(std::function<void()> function) {
00115     m_loopFunction = function;
00116     return *this;
00117   };
00118
00124   Engine &setEventHandler(Event::EventType eventType, eventHandler_t handler);
00125
00128   Point2d getResolution() const;
00129
00132   Engine &buildWindow();
00133
00137   void handleEvents();
00138
00142   void clear();
00143
00147   void render();
00148
00152   void display();
00153
00157   void loop();
00158
00162   RenderWindow &getWindow();
00163
00168   void add(Drawable *drawable);
00173   void add(AnimatedObject *animatedObject);
00174
00175   void remove(Drawable *);
00176
00180   Time getLastFrameDuration() const;
00181
00182 private:
00186   void drawDrawables();
00190   void animateObjects();
00191 };
00192
00193 #endif // ENGINE_HPP_
```

9.14 GameObject.cpp File Reference

```
#include "GameObject.hpp"
#include "log.hpp"
#include "point2d.hpp"
```

Include dependency graph for GameObject.cpp:



9.15 GameObject.cpp

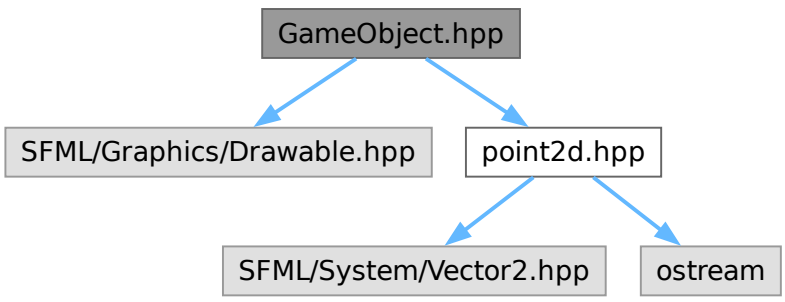
Go to the documentation of this file.

```
00001 #include "GameObject.hpp"
00002 #include "log.hpp"
00003 #include "point2d.hpp"
00004
00005 void GameObject::setPosition(Point2d pos) { m_position = pos; }
00006
00007 Point2d GameObject::getPosition() const { return m_position; }
00008
00009 void GameObject::move(Point2d vector) {
00010   m_position += vector;
00011   // LOGINFO « vector « '\t' « m_position « '\n';
00012 }
```

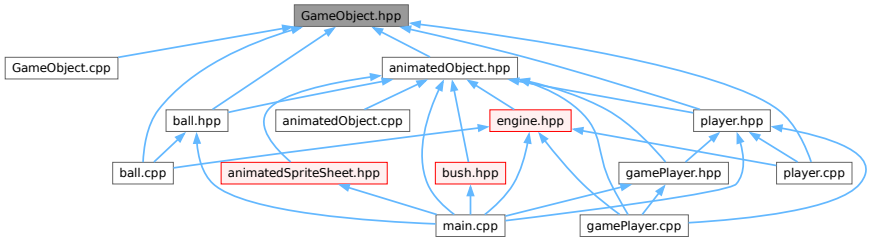
9.16 GameObject.hpp File Reference

```
#include "SFML/Graphics/Drawable.hpp"
#include "point2d.hpp"
```

Include dependency graph for GameObject.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class GameObject

  Game object class.

9.17 GameObject.hpp

Go to the documentation of this file.

```
00001 #ifndef GAMEOBJECT_HPP_
00002 #define GAMEOBJECT_HPP_
00003
00004 #include "SFML/Graphics/Drawable.hpp"
00005 #include "point2d.hpp"
00009 class GameObject {
00010 private:
00014   Point2d m_position{};
00015
00016 public:
00020   virtual ~GameObject(){};
00025   virtual void setPosition(Point2d pos);
00029   virtual Point2d getPosition() const;
00034   virtual void move(Point2d vector);
00035 };
00036
00037 #endif // GAMEOBJECT_HPP_
```

9.18 lineSegment.cpp File Reference

```
#include "lineSegment.hpp"
#include "SFML/Graphics/Color.hpp"
#include "SFML/Graphics/PrimitiveType.hpp"
#include "SFML/Graphics/Vertex.hpp"
#include "engine.hpp"
#include "point2d.hpp"
```

Include dependency graph for lineSegment.cpp:

Namespaces

- namespace obstacle

9.18.1 Detailed Description

Deprecated Bad design. Reinventing wheel.

Definition in file lineSegment.cpp.

9.19 lineSegment.cpp

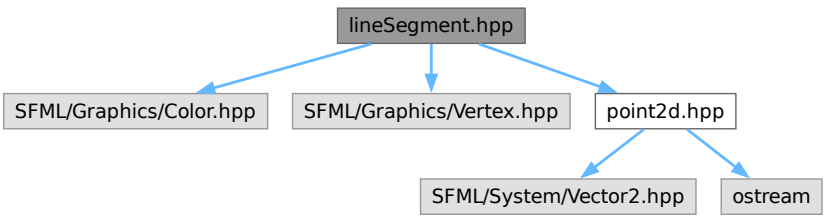
Go to the documentation of this file.

```
00001 #include "lineSegment.hpp"
00002 #include "SFML/Graphics/Color.hpp"
00003 #include "SFML/Graphics/PrimitiveType.hpp"
00004 #include "SFML/Graphics/Vertex.hpp"
00005 #include "engine.hpp"
00006 #include "point2d.hpp"
00007
00013 namespace obstacle {
00014
00015 LineSegment::LineSegment(Point2d start, Point2d end, sf::Color color)
00016     : m_points{{start.toVector2f(), color}, {end.toVector2f(), color}},
00017       m_color{color} {};
00018
00019 void LineSegment::draw() const {
00020   Engine::getInstance().getWindow().draw(m_points, 2, sf::Lines);
00021 }
00022
00023 Point2d LineSegment::getStart() const { return Point2d{m_points[0].position}; }
00024 Point2d LineSegment::getEnd() const { return Point2d{m_points[1].position}; }
00025
00026 void LineSegment::setStart(Point2d val) {
00027   m_points[0].position = val.toVector2f();
00028 }
00029 void LineSegment::setEnd(Point2d val) {
00030   m_points[1].position = val.toVector2f();
00031 }
00032
00033 }; // namespace obstacle
```

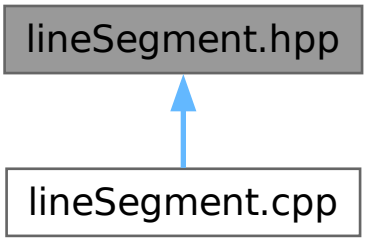
9.20 lineSegment.hpp File Reference

```
#include "SFML/Graphics/Color.hpp"
#include "SFML/Graphics/Vertex.hpp"
#include "point2d.hpp"
```

Include dependency graph for lineSegment.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class obstacle::LineSegment

Namespaces

- namespace obstacle

9.20.1 Detailed Description

Deprecated Bad design. Reinventing wheel.

Definition in file lineSegment.hpp.

9.21 lineSegment.hpp

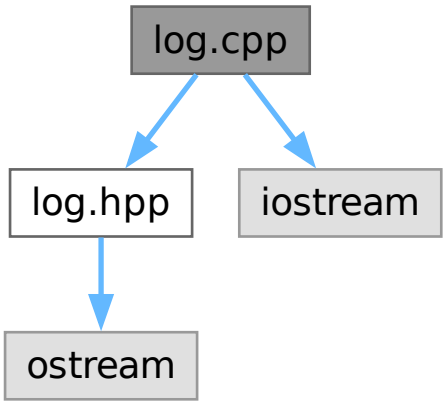
Go to the documentation of this file.

```
00001 #ifndef LINESEGMENT_HPP_
00002 #define LINESEGMENT_HPP_
00003
00004 #include "SFML/Graphics/Color.hpp"
00005 #include "SFML/Graphics/Vertex.hpp"
00006 #include "point2d.hpp"
00007
00013 namespace obstacle {
00014 class LineSegment {
00015   sf::Vertex m_points[2] = {};
00016   sf::Color m_color;
00017
00018 public:
00019   LineSegment(Point2d start, Point2d end, sf::Color color = {});
00020
00021   void draw() const;
00022
00023   Point2d getStart() const;
00024   Point2d getEnd() const;
00025
00026   void setStart(Point2d val);
00027   void setEnd(Point2d val);
00028
00029   void setColor(sf::Color color) { m_color = color; };
00030 };
00031 };     // namespace obstacle
00032 #endif // LINESEGMENT_HPP_
```

9.22 log.cpp File Reference

```
#include "log.hpp"
#include <iostream>
```

Include dependency graph for log.cpp:



Namespaces

- namespace G

Variables

- std::ostream & G::logstream {std::cerr}

9.23 log.cpp

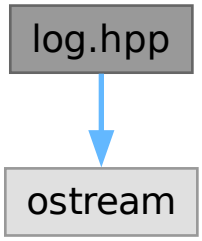
Go to the documentation of this file.

```
00001
00002 #include "log.hpp"
00003
00004 #include <iostream>
00005
00006 namespace G {
00007 std::ostream &logstream{std::cerr};
00008 };
```

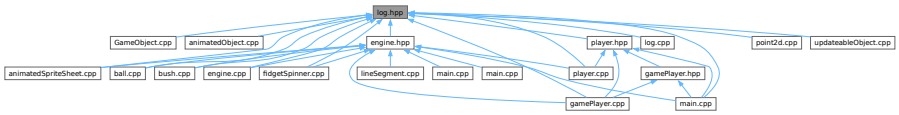
9.24 log.hpp File Reference

```
#include <ostream>
```

Include dependency graph for log.hpp:



This graph shows which files directly or indirectly include this file:



Namespaces

- namespace G

Macros

- #define LOGINFON LOGINFO << '\n'
- #define LOGINFO
- #define LOGWARNN LOGWARN << '\n'
- #define LOGWARN
- #define LOGERROR
- #define LOGTRACEN

9.24.1 Macro Definition Documentation

9.24.1.1 LOGERROR

```
#define LOGERROR
```

Value:

```
  G::logstream « "\033[31m"                                                  \
               « "ERROR "                                                    \
                  "\033[35m"                                                  \
               « __FILE_NAME__ « " \033[36m" « __PRETTY_FUNCTION__          \
               « "\033[0m "
```

Definition at line 25 of file log.hpp.

9.24.1.2 LOGINFO

```
#define LOGINFO
```

Value:

```
  G::logstream « "\033[35m" « __FILE_NAME__ « " \033[36m"                  \
               « __PRETTY_FUNCTION__ « "\033[0m "
```

Definition at line 12 of file log.hpp.

9.24.1.3 LOGINFON

```
#define LOGINFON LOGINFO << '\n'
```

Definition at line 10 of file log.hpp.

9.24.1.4 LOGTRACEN

```
#define LOGTRACEN
```

Definition at line 38 of file log.hpp.

9.24.1.5 LOGWARN

```
#define LOGWARN
```

Value:

```
  G::logstream « "\033[33m"                                                \
               « "WARN "                                                   \
                  "\033[35m"                                                \
               « __FILE_NAME__ « " \033[36m" « __PRETTY_FUNCTION__         \
               « "\033[0m "
```

Definition at line 18 of file log.hpp.

9.24.1.6 LOGWARNN

```
#define LOGWARNN LOGWARN << '\n'
```

Definition at line 16 of file log.hpp.

9.25 log.hpp

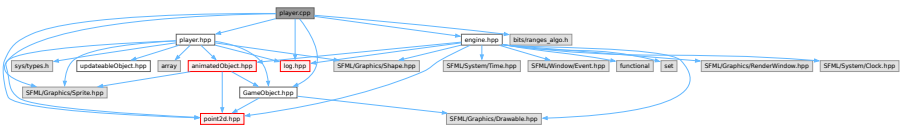
Go to the documentation of this file.

```
00001 #ifndef LOG_HPP_
00002 #define LOG_HPP_
00003
00004 #include <ostream>
00005
00006 namespace G {
00007 extern std::ostream &logstream;
00008 };
00009
00010 #define LOGINFON LOGINFO « '\n'
00011
00012 #define LOGINFO                                                    \
00013   G::logstream « "\033[35m" « __FILE_NAME__ « " \033[36m"          \
00014                « __PRETTY_FUNCTION__ « "\033[0m "
00015
00016 #define LOGWARNN LOGWARN « '\n'
00017
00018 #define LOGWARN                                                    \
00019   G::logstream « "\033[33m"                                        \
00020                « "WARN "                                           \
00021                   "\033[35m"                                       \
00022                « __FILE_NAME__ « " \033[36m" « __PRETTY_FUNCTION__ \
00023                « "\033[0m "
00024
00025 #define LOGERROR                                                   \
00026   G::logstream « "\033[31m"                                        \
00027                « "ERROR "                                          \
00028                   "\033[35m"                                       \
00029                « __FILE_NAME__ « " \033[36m" « __PRETTY_FUNCTION__ \
00030                « "\033[0m "
00031
00032 #ifdef TRACE
00033 #define LOGTRACEN                                                  \
00034   G::logstream « "TRACE "                                          \
00035                « "\033[35m" « __FILE_NAME__ « " \033[36m"          \
00036                « __PRETTY_FUNCTION__ « "\033[0m\n";
00037 #else
00038 #define LOGTRACEN
00039 #endif // TRACE
00040
00041 #endif // LOG_HPP_
```

9.26 player.cpp File Reference

```
#include "player.hpp"
#include "GameObject.hpp"
#include "SFML/Graphics/Sprite.hpp"
#include "engine.hpp"
#include "log.hpp"
#include "point2d.hpp"
#include <bits/ranges_algo.h>
```

Include dependency graph for player.cpp:



9.27 player.cpp

Go to the documentation of this file.

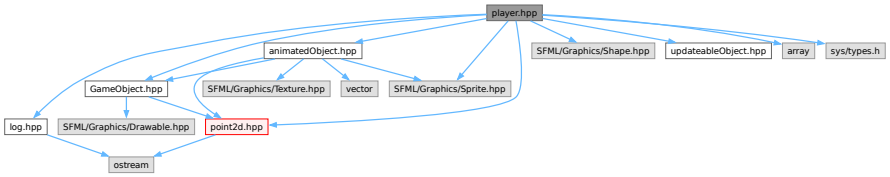
```
00001 #include "player.hpp"
00002 #include "GameObject.hpp"
00003 #include "SFML/Graphics/Sprite.hpp"
00004 #include "engine.hpp"
00005 #include "log.hpp"
00006 #include "point2d.hpp"
00007 #include <bits/ranges_algo.h>
00008
00009 Player::~Player(){};
00010
00011 void Player::move(Point2d vec) {
00012   GameObject::move(vec);
00013   sf::Sprite::move(getMoveVector().toVector2f());
00014   // LOGINFO « GameObject::getPosition() « '\n';
00015 };
00016
00017 Point2d Player::getMoveVectorOrigin() const {
00018   Point2d vec{};
00019
00020   if (m_isMoving[static_cast<int>(MoveDirection::north)])
00021     vec += {0, -1};
00022   if (m_isMoving[static_cast<int>(MoveDirection::east)])
00023     vec += {1, 0};
00024   if (m_isMoving[static_cast<int>(MoveDirection::south)])
00025     vec += {0, 1};
00026   if (m_isMoving[static_cast<int>(MoveDirection::west)])
00027     vec += {-1, 0};
00028   return vec;
00029 }
00030
00031 void Player::setMovementSpeed(float speed) { m_movementSpeed = speed; }
00032 float Player::getMovementSpeed() const { return m_movementSpeed; };
00033
00034 bool Player::isMovingDiagonaly() const {
00035   Point2d vec{getMoveVectorOrigin()};
00036   auto absMoveDist{std::abs(vec.getX()) + std::abs(vec.getY())};
00037   return absMoveDist > 1;
00038 }
00039
00040 Point2d Player::getMoveVector() const {
00041   return getMoveVectorOrigin() * m_movementSpeed *
00042          Engine::getInstance().getLastFrameDuration().asSeconds();
00043 }
00044
00045 void Player::setIsMoving(MoveDirection direction) {
00046   m_isMoving[static_cast<ssize_t>(direction)] = true;
00047 };
00048
00049 void Player::stopMoving(MoveDirection direction) {
00050   m_isMoving[static_cast<ssize_t>(direction)] = false;
00051 }
00052
00053 bool Player::isMoving() const {
00054   bool moving{};
00055   return getMoveVectorOrigin() != Point2d{0, 0};
00056 }
00057
00058 bool Player::isMoving(MoveDirection direction) const {
00059   return m_isMoving[static_cast<ssize_t>(direction)];
00060 }
00061
00062 void Player::stopMoving() {
00063   for (auto &it : m_isMoving) {
00064     it = false;
00065   }
00066 }
00067
00068 void Player::update() {
00069   Point2d vec = getMoveVector();
00070   move(vec);
00071 };
```

9.28 player.hpp File Reference

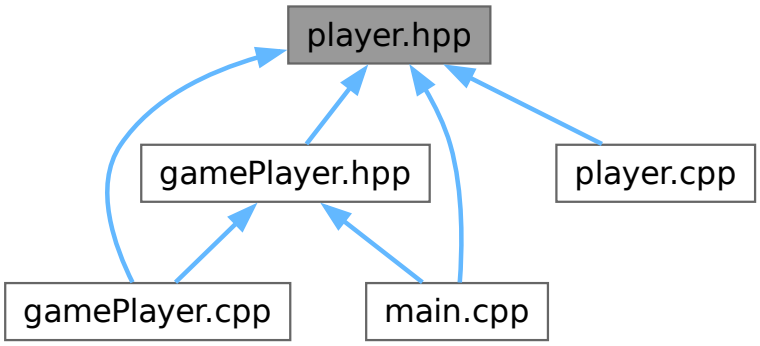
```
#include "GameObject.hpp"
#include "SFML/Graphics/Shape.hpp"
#include "SFML/Graphics/Sprite.hpp"
#include "animatedObject.hpp"
#include "log.hpp"
```

```
#include "point2d.hpp"
#include "updateableObject.hpp"
#include <array>
#include <sys/types.h>
```

Include dependency graph for player.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class Player

  Player class.

9.29 player.hpp

Go to the documentation of this file.

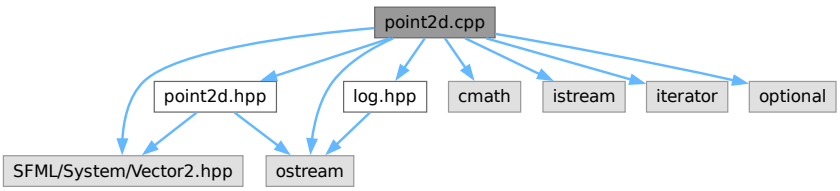
```
00001 #ifndef PLAYER_H_
00002 #define PLAYER_H_
00003
00004 #include "GameObject.hpp"
00005 #include "SFML/Graphics/Shape.hpp"
00006 #include "SFML/Graphics/Sprite.hpp"
00007 #include "animatedObject.hpp"
00008 #include "log.hpp"
00009 #include "point2d.hpp"
00010 #include "updateableObject.hpp"
00011 #include <array>
00012 #include <sys/types.h>
00016 class Player : public AnimatedObject, public UpdateableObject {
00017 public:
00021   enum class MoveDirection { north, east, south, west, count };
00022
```

```
00023 private:
00027   float m_movementSpeed{50};
00031   std::array<bool, static_cast<ssize_t>(MoveDirection::count)> m_isMoving{};
00036   void move(Point2d vec);
00037
00038 public:
00042   virtual ~Player();
00047   virtual void setIsMoving(MoveDirection direction);
00052   virtual void stopMoving(MoveDirection direction);
00053
00057   void stopMoving();
00061   bool isMoving() const;
00066   bool isMoving(MoveDirection direction) const;
00067
00071   void setMovementSpeed(float speed);
00075   virtual float getMovementSpeed() const;
00079   bool isMovingDiagonaly() const;
00080
00084   Point2d getMoveVectorOrigin() const;
00088   Point2d getMoveVector() const;
00089
00090   virtual void update();
00091 };
00092 #endif // PLAYER_H_
```

9.30 point2d.cpp File Reference

```
#include "point2d.hpp"
#include "SFML/System/Vector2.hpp"
#include "log.hpp"
#include <cmath>
#include <istream>
#include <iterator>
#include <optional>
#include <ostream>
```

Include dependency graph for point2d.cpp:



Functions

- Point2d operator+ (const Point2d &a, const Point2d &b)
- Point2d & operator+= (Point2d &a, const Point2d &b)
- Point2d operator- (const Point2d &a, const Point2d &b)
- Point2d operator∗ (const Point2d &a, float b)
- Point2d operator∗ (float b, const Point2d &a)
- std::ostream & operator<< (std::ostream &os, const Point2d &point)
- std::istream & operator>> (std::istream &is, Point2d &point)
- bool operator== (const Point2d &a, const Point2d &b)
- bool operator!= (const Point2d &a, const Point2d &b)

9.30.1 Function Documentation

9.30.1.1 operator"!=()

```
bool operator!= (
            const Point2d & a,
            const Point2d & b )
```

Definition at line 50 of file point2d.cpp.

```
00050                                                 {
00051   return !operator==(a, b);
00052 }
```

9.30.1.2 operator*() [1/2]

```
Point2d operator* (
            const Point2d & a,
            float b )
```

Definition at line 29 of file point2d.cpp.

```
00029                                                 {
00030   return {a.getX() * b, a.getY() * b};
00031 };
```

9.30.1.3 operator*() [2/2]

```
Point2d operator* (
            float b,
            const Point2d & a )
```

Definition at line 33 of file point2d.cpp.

```
00033 { return operator*(a, b); }
```

9.30.1.4 operator+()

```
Point2d operator+ (
            const Point2d & a,
            const Point2d & b )
```

Definition at line 16 of file point2d.cpp.

```
00016                                                 {
00017   return {a.m_x + b.m_x, a.m_y + b.m_y};
00018 }
```

9.30.1.5 operator+=()

```
Point2d & operator+= (
            Point2d & a,
            const Point2d & b )
```

Definition at line 20 of file point2d.cpp.

```
00020                                                 {
00021   a = a + b;
00022   return a;
00023 }
```

9.30.1.6 operator-()

```
Point2d operator- (
            const Point2d & a,
            const Point2d & b )
```

Definition at line 25 of file point2d.cpp.

```
00025                                                 {
00026   return operator+(a, -1 * b);
00027 }
```

9.30.1.7 operator<<()

```
std::ostream & operator<< (
            std::ostream & os,
            const Point2d & point )
```

Definition at line 35 of file point2d.cpp.

```
00035                                                                 {
00036   os « "Point2d(" « point.m_x « ", " « point.m_y « ")";
00037   return os;
00038 }
```

9.30.1.8 operator==()

```
bool operator== (
            const Point2d & a,
            const Point2d & b )
```

Definition at line 46 of file point2d.cpp.

```
00046                                                 {
00047   return a.getX() == b.getX() && a.getY() == b.getY();
00048 }
```

9.30.1.9 operator>>()

```
std::istream & operator>> (
            std::istream & is,
            Point2d & point )
```

Definition at line 40 of file point2d.cpp.

```
00040                                                 {
00041   is » point.m_x;
00042   is » point.m_y;
00043   return is;
00044 }
```

9.31 point2d.cpp

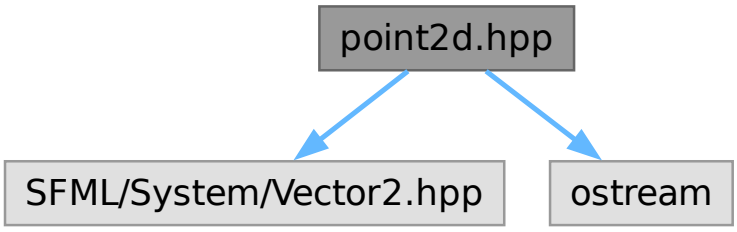
Go to the documentation of this file.

```
00001 #include "point2d.hpp"
00002 #include "SFML/System/Vector2.hpp"
00003 #include "log.hpp"
00004 #include <cmath>
00005 #include <istream>
00006 #include <iterator>
00007 #include <optional>
00008 #include <ostream>
00009
00010 Point2d::Point2d(cordinate_t x, cordinate_t y) : m_x(x), m_y(y){};
00011 Point2d::Point2d(const sf::Vector2f &vector) : m_x{vector.x}, m_y{vector.y} {};
00012 Point2d::Point2d(const sf::Vector2i &vector)
00013     : m_x{static_cast<cordinate_t>(vector.x)},
00014       m_y{static_cast<cordinate_t>(vector.y)} {};
00015
00016 Point2d operator+(const Point2d &a, const Point2d &b) {
00017   return {a.m_x + b.m_x, a.m_y + b.m_y};
00018 }
00019
00020 Point2d &operator+=(Point2d &a, const Point2d &b) {
00021   a = a + b;
00022   return a;
00023 }
00024
00025 Point2d operator-(const Point2d &a, const Point2d &b) {
00026   return operator+(a, -1 * b);
00027 }
00028
00029 Point2d operator*(const Point2d &a, float b) {
00030   return {a.getX() * b, a.getY() * b};
00031 };
00032
00033 Point2d operator*(float b, const Point2d &a) { return operator*(a, b); }
00034
00035 std::ostream &operator«(std::ostream &os, const Point2d &point) {
00036   os « "Point2d(" « point.m_x « ", " « point.m_y « ")";
00037   return os;
00038 }
00039
00040 std::istream &operator»(std::istream &is, Point2d &point) {
00041   is » point.m_x;
00042   is » point.m_y;
00043   return is;
00044 }
00045
00046 bool operator==(const Point2d &a, const Point2d &b) {
00047   return a.getX() == b.getX() && a.getY() == b.getY();
00048 }
00049
00050 bool operator!=(const Point2d &a, const Point2d &b) {
00051   return !operator==(a, b);
00052 }
00053
00054 Point2d::cordinate_t Point2d::getX() const { return m_x; };
00055 Point2d::cordinate_t Point2d::getY() const { return m_y; };
00056
00057 void Point2d::setX(cordinate_t x) { m_x = x; };
00058 void Point2d::setY(cordinate_t y) { m_y = y; };
00063 void Point2d::swap(Point2d &b) {
00064   std::swap(m_x, b.m_x);
00065   std::swap(m_y, b.m_y);
00066 }
00067
00068 sf::Vector2f Point2d::toVector2f() const {
00069   return {static_cast<float>(m_x), static_cast<float>(m_y)};
00070 }
00071
00072 Point2d::cordinate_t Point2d::length() const {
00073   return std::sqrt((m_x * m_x) + (m_y * m_y));
00074   return length();
00075 }
00076
00077 Point2d::cordinate_t Point2d::distanceTo(const Point2d &point) const {
00078   return (*this - point).length();
00079 };
```

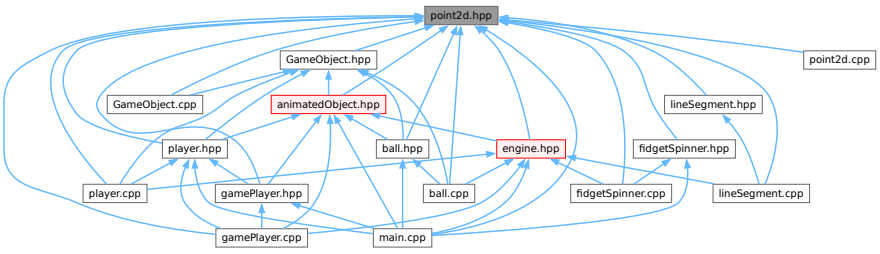
9.32 point2d.hpp File Reference

```
#include "SFML/System/Vector2.hpp"
#include <ostream>
```

Include dependency graph for point2d.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class Point2d

  Class containing 2D point co-ordinates.

9.33 point2d.hpp

Go to the documentation of this file.

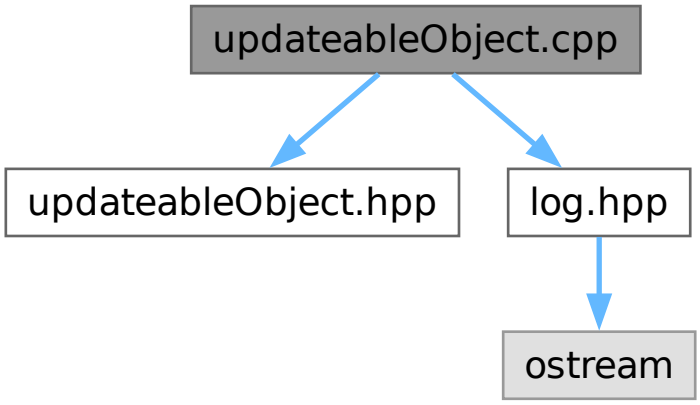
```
00001 #ifndef POINT2D_HPP_
00002 #define POINT2D_HPP_
00003
00004 #include "SFML/System/Vector2.hpp"
00005 #include <ostream>
00009 class Point2d {
00010 public:
00011   using cordinate_t = float;
00012
00013 private:
00017   cordinate_t m_x;
00021   cordinate_t m_y;
00022
00023 public:
00029   Point2d(cordinate_t x = 0, cordinate_t y = 0);
```

```
00034   Point2d(const Point2d &point) = default;
00039   explicit Point2d(const sf::Vector2f &vector);
00040
00041   explicit Point2d(const sf::Vector2i &vector);
00042
00043   friend Point2d operator+(const Point2d &a, const Point2d &b);
00044   friend Point2d &operator+=(Point2d &a, const Point2d &b);
00045
00046   friend Point2d operator-(const Point2d &a, const Point2d &b);
00047
00048   friend bool operator==(const Point2d &a, const Point2d &b);
00049   friend bool operator!=(const Point2d &a, const Point2d &b);
00050
00051   friend Point2d operator*(const Point2d &a, float b);
00052   friend Point2d operator*(float b, const Point2d &a);
00053
00054   friend std::ostream &operator<<(std::ostream &os, const Point2d &point);
00055
00056   friend std::istream &operator>>(std::istream &is, Point2d &point);
00057
00061   cordinate_t getX() const;
00065   cordinate_t getY() const;
00069   void setX(cordinate_t x);
00073   void setY(cordinate_t y);
00074
00075   void swap(Point2d &b);
00079   sf::Vector2f toVector2f() const;
00083   cordinate_t length() const;
00088   cordinate_t distanceTo(const Point2d &point) const;
00089 };
00090
00091 #endif // POINT2D_HPP_
```

9.34 updateableObject.cpp File Reference

```
#include "updateableObject.hpp"
#include "log.hpp"
```

Include dependency graph for updateableObject.cpp:



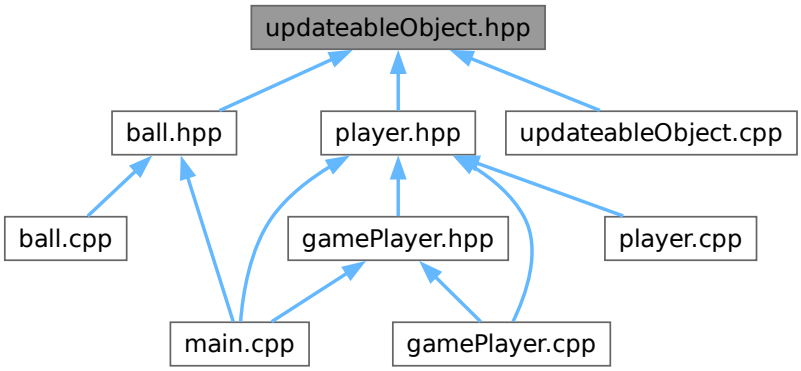
9.35 updateableObject.cpp

Go to the documentation of this file.

```
00001 #include "updateableObject.hpp"
00002 #include "log.hpp"
00003
00004 // void UpdateableObject::update() { LOGWARN << "not implemented\n"; };
```

9.36 updateableObject.hpp File Reference

This graph shows which files directly or indirectly include this file:



Classes

- class UpdateableObject

  Updateable object class.

9.37 updateableObject.hpp

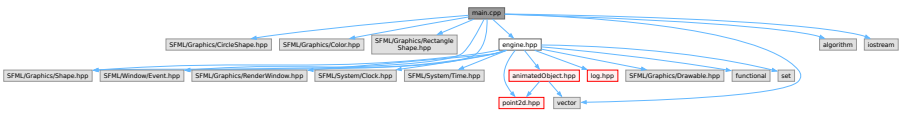
Go to the documentation of this file.

```
00001 #ifndef UPDATEABLEOBJECT_HPP_
00002 #define UPDATEABLEOBJECT_HPP_
00006 class UpdateableObject {
00007 public:
00011   virtual void update() = 0;
00012 };
00013
00014 #endif // UPDATEABLEOBJECT_HPP_
```

9.38 test/main.cpp File Reference

```
#include "SFML/Graphics/CircleShape.hpp"
#include "SFML/Graphics/Color.hpp"
#include "SFML/Graphics/RectangleShape.hpp"
#include "SFML/Graphics/Shape.hpp"
#include "SFML/Window/Event.hpp"
#include "engine.hpp"
#include <algorithm>
#include <iostream>
#include <vector>
```

Include dependency graph for test/main.cpp:



Namespaces

- namespace G

Functions

- void customLoopFunction ()
- void addSomeRenderables ()
- void setUpCustomEvents ()
- int main ()

Variables

- std::vector< Engine::Shape * > G::drwables {}
- bool G::moveVertically {false}

9.38.1 Function Documentation

9.38.1.1 addSomeRenderables()

```
void addSomeRenderables ( )
```

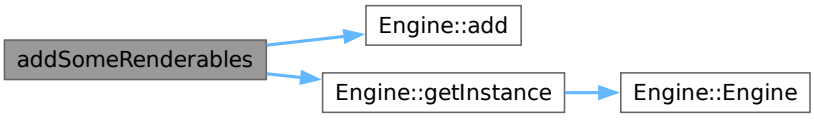
Definition at line 39 of file test/main.cpp.

```
00039                           {
00040   Engine &eng = Engine::getInstance();
00041   const sf::Color pink{0xff, 0x69, 0xb4};
00042
00043   for (int i{}; i < 8; ++i) {
00044     sf::CircleShape *circle =
00045         new sf::CircleShape{10 + static_cast<float>(i) * 4};
00046     circle->setPosition(50 + i * 100, 100 - static_cast<float>(i) * 4);
00047     circle->setFillColor(pink);
00048     eng.add(circle);
00049     G::drwables.push_back(circle);
00050   };
00051
00052   sf::RectangleShape *rectangle{new sf::RectangleShape{{8 * 100 + 50, 4}}};
00053   rectangle->setPosition({50 + 5, 100 + 10});
00054   rectangle->setFillColor(pink);
00055   eng.add(rectangle);
00056   G::drwables.push_back(rectangle);
00057 }
```

References Engine::add(), G::drwables, eng, and Engine::getInstance().

Referenced by main().

Here is the call graph for this function:



Here is the caller graph for this function:

9.38.1.2 customLoopFunction()

```
void customLoopFunction ( )
```

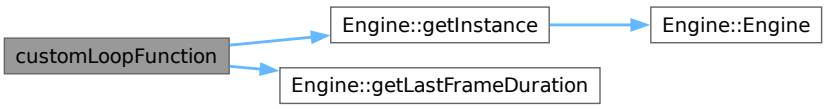
Definition at line 16 of file test/main.cpp.

```
00016                                {
00017   static float speed = 500;
00018   static float distanceSum = 0;
00019
00020   auto deltaTime{Engine::getInstance().getLastFrameDuration().asSeconds()};
00021
00022   float distance = speed * deltaTime;
00023   distanceSum += std::abs(distance);
00024
00025   for (Engine::Shape *i : G::drwables) {
00026     if (G::moveVertically)
00027       i->move(distance, 0);
00028     else {
00029       i->move(0, distance);
00030     }
00031   }
00032
00033   if (distanceSum >= 500) {
00034     speed *= -1;
00035     distanceSum = 0;
00036   }
00037 }
```

References G::drwables, Engine::getInstance(), Engine::getLastFrameDuration(), and G::moveVertically.

Referenced by main().

Here is the call graph for this function:



Here is the caller graph for this function:

9.38.1.3 main()

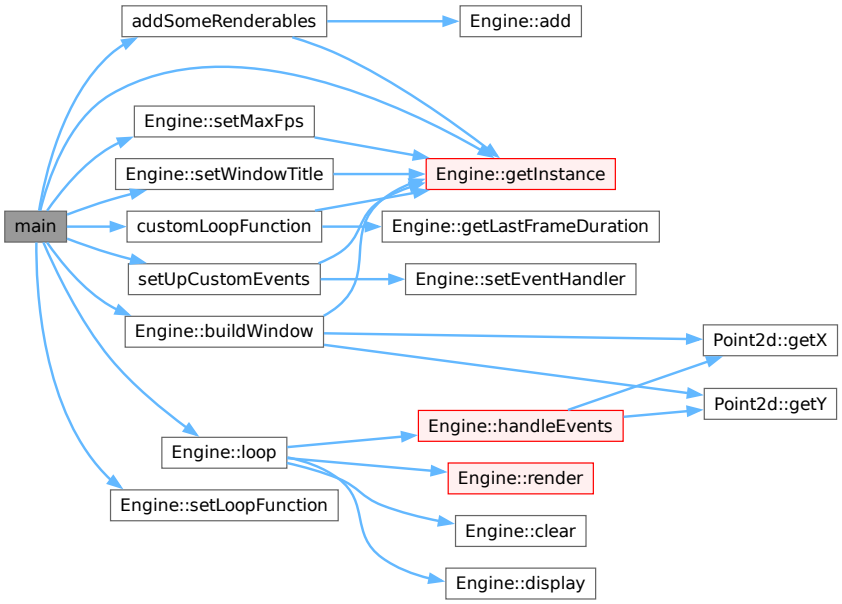
```
int main ( )
```

Definition at line 70 of file test/main.cpp.

```
00070           {
00071   Engine &eng = Engine::getInstance()
00072                     .setWindowTitle("dev")
00073                     .setMaxFps(60)
00074                     .setLoopFunction(customLoopFunction)
00075                     .buildWindow();
00076
00077   setUpCustomEvents();
00078   addSomeRenderables();
00079   eng.loop();
00080 }
```

References addSomeRenderables(), Engine::buildWindow(), customLoopFunction(), eng, Engine::getInstance(), Engine::loop(), Engine::setLoopFunction(), Engine::setMaxFps(), setUpCustomEvents(), and Engine::setWindowTitle().

Here is the call graph for this function:



9.38.1.4 setUpCustomEvents()

```
void setUpCustomEvents ( )
```

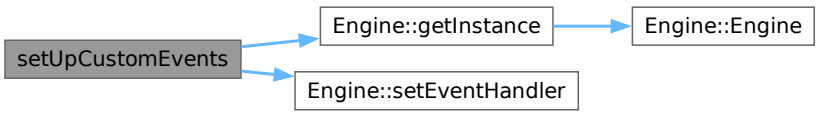
Definition at line 59 of file test/main.cpp.

```
00059                           {
00060   Engine::getInstance().setEventHandler(
00061       sf::Event::MouseButtonPressed, [](const sf::Event &ev) {
00062         std::cout « "Custom event handler Mouse button press "
00063                  « ev.mouseButton.button « '\t' « ev.mouseButton.x « '\t'
00064                  « ev.mouseButton.y « "\n";
00065         if (ev.mouseButton.button == 0)
00066           G::moveVertically = !G::moveVertically;
00067       });
00068 }
```

References Engine::getInstance(), G::moveVertically, and Engine::setEventHandler().

Referenced by main().

Here is the call graph for this function:



Here is the caller graph for this function:

9.39 test/main.cpp

Go to the documentation of this file.

```
00001 #include "SFML/Graphics/CircleShape.hpp"
00002 #include "SFML/Graphics/Color.hpp"
00003 #include "SFML/Graphics/RectangleShape.hpp"
00004 #include "SFML/Graphics/Shape.hpp"
00005 #include "SFML/Window/Event.hpp"
00006 #include "engine.hpp"
00007 #include <algorithm>
00008 #include <iostream>
00009 #include <vector>
00010
00011 namespace G {
00012 std::vector<Engine::Shape *> drwables{};
00013 bool moveVertically{false};
00014 }; // namespace G
00015
00016 void customLoopFunction() {
00017   static float speed = 500;
00018   static float distanceSum = 0;
00019
00020   auto deltaTime{Engine::getInstance().getLastFrameDuration().asSeconds()};
00021
00022   float distance = speed * deltaTime;
00023   distanceSum += std::abs(distance);
00024
00025   for (Engine::Shape *i : G::drwables) {
00026     if (G::moveVertically)
00027       i->move(distance, 0);
00028     else {
00029       i->move(0, distance);
00030     }
00031   }
00032
00033   if (distanceSum >= 500) {
00034     speed *= -1;
00035     distanceSum = 0;
00036   }
```

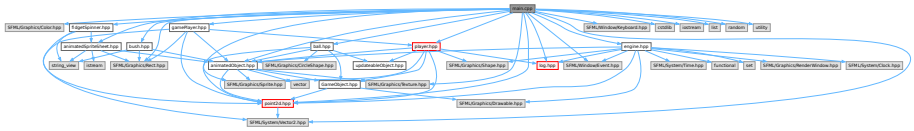
```
00037 }
00038
00039 void addSomeRenderables() {
00040   Engine &eng = Engine::getInstance();
00041   const sf::Color pink{0xff, 0x69, 0xb4};
00042
00043   for (int i{}; i < 8; ++i) {
00044     sf::CircleShape *circle =
00045         new sf::CircleShape{10 + static_cast<float>(i) * 4};
00046     circle->setPosition(50 + i * 100, 100 - static_cast<float>(i) * 4);
00047     circle->setFillColor(pink);
00048     eng.add(circle);
00049     G::drwables.push_back(circle);
00050   };
00051
00052   sf::RectangleShape *rectangle{new sf::RectangleShape{{8 * 100 + 50, 4}}};
00053   rectangle->setPosition({50 + 5, 100 + 10});
00054   rectangle->setFillColor(pink);
00055   eng.add(rectangle);
00056   G::drwables.push_back(rectangle);
00057 }
00058
00059 void setUpCustomEvents() {
00060   Engine::getInstance().setEventHandler(
00061       sf::Event::MouseButtonPressed, [](const sf::Event &ev) {
00062         std::cout « "Custom event handler Mouse button press "
00063                  « ev.mouseButton.button « '\t' « ev.mouseButton.x « '\t'
00064                  « ev.mouseButton.y « "\n";
00065         if (ev.mouseButton.button == 0)
00066           G::moveVertically = !G::moveVertically;
00067       });
00068 }
00069
00070 int main() {
00071   Engine &eng = Engine::getInstance()
00072                     .setWindowTitle("dev")
00073                     .setMaxFps(60)
00074                     .setLoopFunction(customLoopFunction)
00075                     .buildWindow();
00076
00077   setUpCustomEvents();
00078   addSomeRenderables();
00079   eng.loop();
00080 }
```

9.40 test2/main.cpp File Reference

```
#include "SFML/Graphics/Color.hpp"
#include "SFML/Graphics/Rect.hpp"
#include "SFML/Graphics/Sprite.hpp"
#include "SFML/Graphics/Texture.hpp"
#include "SFML/System/Vector2.hpp"
#include "SFML/Window/Event.hpp"
#include "SFML/Window/Keyboard.hpp"
#include "animatedObject.hpp"
#include "animatedSpriteSheet.hpp"
#include "ball.hpp"
#include "bush.hpp"
#include "engine.hpp"
#include "fidgetSpinner.hpp"
#include "gamePlayer.hpp"
#include "log.hpp"
#include "player.hpp"
#include "point2d.hpp"
#include <cstdlib>
#include <iostream>
#include <list>
#include <random>
```

```
#include <utility>
```

Include dependency graph for test2/main.cpp:



Functions

- Ball * throwBall (Point2d pos, Point2d vector)
- sf::Color getRandomColor ()
- void throwBallPlayer ()
- void initialziePlayer ()
- void initializeBush ()
- void handlePlayerMovement ()
- void handleBalls ()
- void customLoop ()
- void spinTheFidget ()
- void keyPressedEventHandler (const sf::Event &ev)
- void keyReleasedEventHandler (const sf::Event &ev)
- void initializeFidgetSpinner ()
- int main ()

Variables

- GamePlayer player {}
- std::array< Bush, 4 > bush {}
- Engine & eng = Engine::getInstance()
- FidgetSpinner fidgetSpinner {"resource/fidgetSpinner"}
- std::list< Ball * > balls

9.40.1 Function Documentation

9.40.1.1 customLoop()

```
void customLoop ( )
```

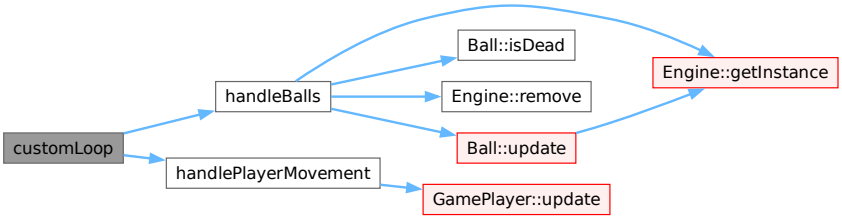
Definition at line 94 of file test2/main.cpp.

```
00094                   {
00095   handlePlayerMovement();
00096   handleBalls();
00097 }
```

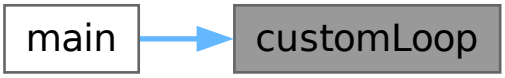
References handleBalls(), and handlePlayerMovement().

Referenced by main().

Here is the call graph for this function:



Here is the caller graph for this function:



9.40.1.2 getRandomColor()

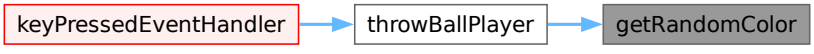
```
sf::Color getRandomColor ( )
```

Definition at line 41 of file test2/main.cpp.

```
00041                           {
00042   return {static_cast<sf::Uint8>(rand() % 256),
00043           static_cast<sf::Uint8>(rand() % 256),
00044           static_cast<sf::Uint8>(rand() % 256)};
00045 }
```

Referenced by throwBallPlayer().

Here is the caller graph for this function:



9.40.1.3 handleBalls()

```
void handleBalls ( )
```

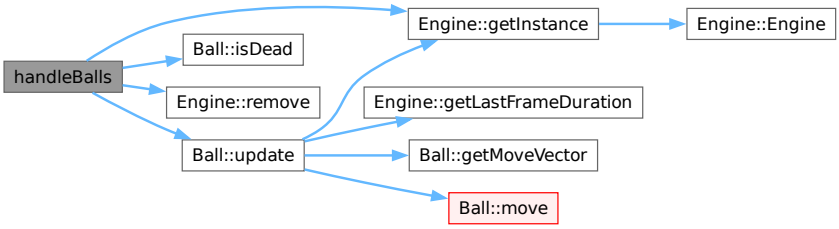
Definition at line 79 of file test2/main.cpp.

```
00079                    {
00080
00081   for (auto it{balls.begin()}; it != balls.end();) {
00082     auto it2{it};
00083     ++it;
00084     Ball *b = *it2;
00085     b->update();
00086     if (b->isDead()) {
00087       Engine::getInstance().remove(b);
00088       balls.remove(b);
00089       delete b;
00090     }
00091   }
00092 }
```

References balls, Engine::getInstance(), Ball::isDead(), Engine::remove(), and Ball::update().

Referenced by customLoop().

Here is the call graph for this function:



Here is the caller graph for this function:

9.40.1.4 handlePlayerMovement()

```
void handlePlayerMovement ( )
```

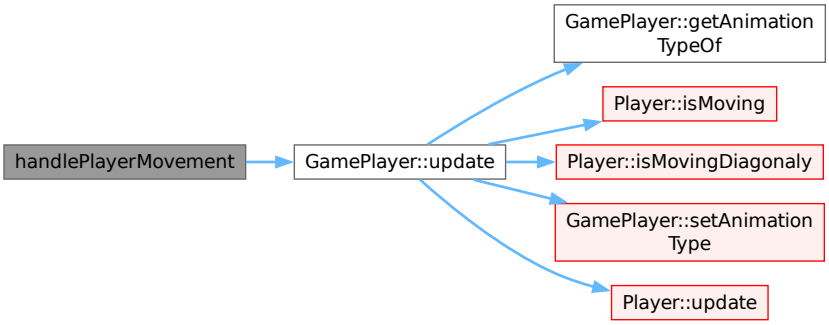
Definition at line 77 of file test2/main.cpp.

```
00077 { player.update(); }
```

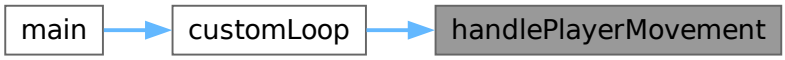
References player, and GamePlayer::update().

Referenced by customLoop().

Here is the call graph for this function:



Here is the caller graph for this function:



9.40.1.5 initializeBush()

```
void initializeBush ( )
```

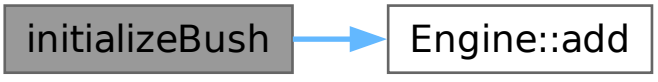
Definition at line 66 of file test2/main.cpp.

```
00066                       {
00067   for (ssize_t i{}; i < bush.max_size(); ++i) {
00068     LOGINFO « i « '\n';
00069     eng.add(&(bush[i]));
00070   }
00071   bush[0].setPosition({300, 150});
00072   bush[1].setPosition({700, 550});
00073   bush[2].setPosition({100, 450});
00074   bush[3].setPosition({800, 250});
00075 }
```

References Engine::add(), bush, eng, and LOGINFO.

Referenced by main().

Here is the call graph for this function:



Here is the caller graph for this function:

9.40.1.6 initializeFidgetSpinner()

```
void initializeFidgetSpinner ( )
```

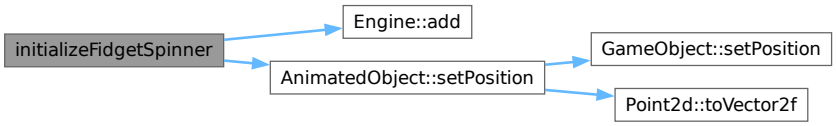
Definition at line 163 of file test2/main.cpp.

```
00163                                {
00164   fidgetSpinner.setPosition({600, 600});
00165   eng.add(&fidgetSpinner);
00166 }
```

References Engine::add(), eng, fidgetSpinner, and AnimatedObject::setPosition().

Referenced by main().

Here is the call graph for this function:



Here is the caller graph for this function:

9.40.1.7 initialziePlayer()

```
void initialziePlayer ( )
```

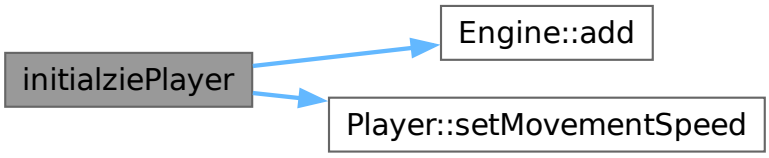
Definition at line 59 of file test2/main.cpp.

```
00059                          {
00060   LOGINFON;
00061   player.setMovementSpeed(50);
00062   player.setColor(sf::Color::Yellow);
00063   eng.add(&player);
00064 }
```

References Engine::add(), eng, LOGINFON, player, and Player::setMovementSpeed().

Referenced by main().

Here is the call graph for this function:



Here is the caller graph for this function:

9.40.1.8 keyPressedEventHandler()

```
void keyPressedEventHandler (
            const sf::Event & ev )
```

Definition at line 114 of file test2/main.cpp.

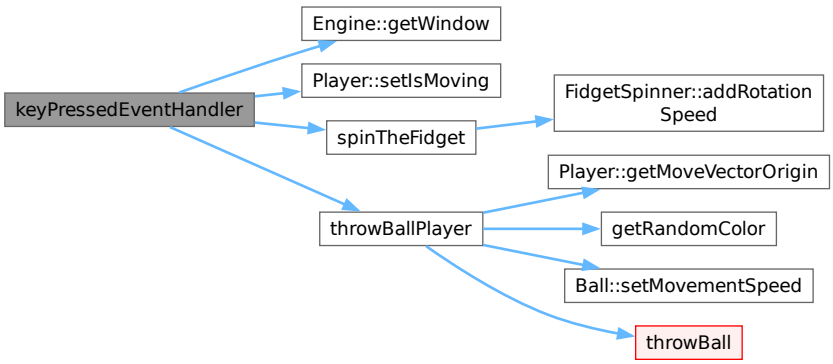
```
00114                                           {
00115   switch (ev.key.code) {
00116   case sf::Keyboard::W:
00117     player.setIsMoving(Player::MoveDirection::north);
00118     break;
00119   case sf::Keyboard::A:
00120     player.setIsMoving(Player::MoveDirection::west);
00121     break;
00122   case sf::Keyboard::S:
00123     player.setIsMoving(Player::MoveDirection::south);
00124     break;
00125   case sf::Keyboard::D:
```

```
00126     player.setIsMoving(Player::MoveDirection::east);
00127     break;
00128
00129   case sf::Keyboard::F:
00130     throwBallPlayer();
00131     break;
00132   case sf::Keyboard::Space:
00133     spinTheFidget();
00134     break;
00135   case sf::Keyboard::Escape:
00136     eng.getWindow().close();
00137     break;
00138
00139   default:
00140     break;
00141   }
00142 }
```

References Player::east, eng, Engine::getWindow(), Player::north, player, Player::setIsMoving(), Player::south, spinTheFidget(), throwBallPlayer(), and Player::west.

Referenced by main().

Here is the call graph for this function:



Here is the caller graph for this function:

9.40.1.9 keyReleasedEventHandler()

```
void keyReleasedEventHandler (
            const sf::Event & ev )
```

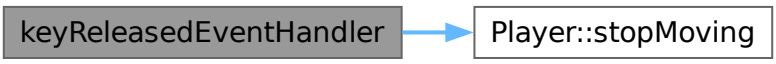
Definition at line 144 of file test2/main.cpp.

```
00144                                                {
00145   switch (ev.key.code) {
00146   case sf::Keyboard::W:
00147     player.stopMoving(Player::MoveDirection::north);
00148     break;
00149   case sf::Keyboard::A:
00150     player.stopMoving(Player::MoveDirection::west);
00151     break;
00152   case sf::Keyboard::S:
00153     player.stopMoving(Player::MoveDirection::south);
00154     break;
00155   case sf::Keyboard::D:
00156     player.stopMoving(Player::MoveDirection::east);
00157     break;
00158   default:
00159     break;
00160   }
00161 }
```

References Player::east, Player::north, player, Player::south, Player::stopMoving(), and Player::west.

Referenced by main().

Here is the call graph for this function:



Here is the caller graph for this function:

9.40.1.10 main()

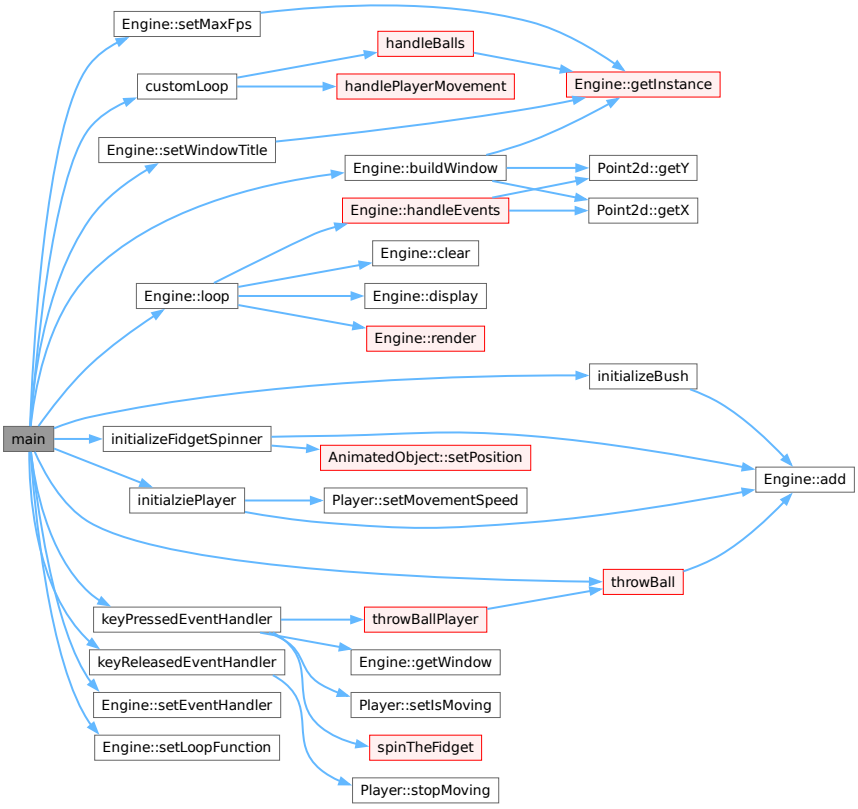
```
int main ( )
```

Definition at line 168 of file test2/main.cpp.

```
00168           {
00169   LOGTRACEN;
00170   eng.setWindowTitle("dev").setMaxFps(75).buildWindow();
00171   eng.setEventHandler(sf::Event::KeyPressed, keyPressedEventHandler);
00172   eng.setEventHandler(sf::Event::KeyReleased, keyReleasedEventHandler);
00173   eng.setLoopFunction(customLoop);
00174
00175   initialziePlayer();
00176   initializeBush();
00177   initializeFidgetSpinner();
00178   throwBall({100, 0}, {1, 1});
00179
00180   eng.loop();
00181 }
```

References Engine::buildWindow(), customLoop(), eng, initializeBush(), initializeFidgetSpinner(), initialziePlayer(), keyPressedEventHandler(), keyReleasedEventHandler(), LOGTRACEN, Engine::loop(), Engine::setEventHandler(), Engine::setLoopFunction(), Engine::setMaxFps(), Engine::setWindowTitle(), and throwBall().

Here is the call graph for this function:



9.40.1.11 spinTheFidget()

```
void spinTheFidget ( )
```

Definition at line 99 of file test2/main.cpp.

```
00099                       {
00100
00101   Point2d pla{Point2d(player.sf::Sprite::getPosition()) +
00102               Point2d{player.sf::Sprite::getTextureRect().getSize()} * 0.5};
00103   Point2d fig{Point2d{fidgetSpinner.sf::Sprite::getPosition()} +
00104               Point2d{fidgetSpinner.getTextureRect().getSize()} * 0.5};
00105
00106   float dist(pla.distanceTo(fig));
00107
00108   LOGINFO « dist « '\n';
00109   if (dist < 300) {
00110     fidgetSpinner.addRotationSpeed(8);
00111   }
00112 }
```

References FidgetSpinner::addRotationSpeed(), fidgetSpinner, LOGINFO, and player.

Referenced by keyPressedEventHandler().

Here is the call graph for this function:

Here is the caller graph for this function:

9.40.1.12 throwBall()

```
Ball * throwBall (
            Point2d pos,
            Point2d vector )
```

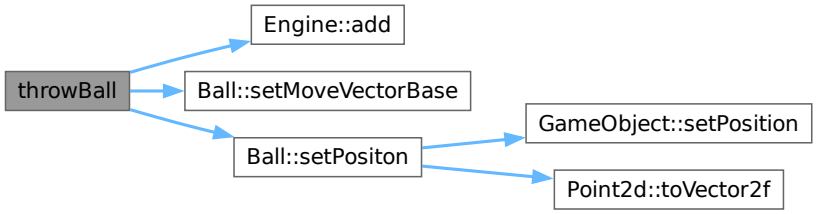
Definition at line 32 of file test2/main.cpp.

```
00032                                                {
00033   Ball *bal = new Ball();
00034   bal->setPositon(pos);
00035   bal->setMoveVectorBase(vector);
00036   balls.push_back(bal);
00037   eng.add(bal);
00038   return bal;
00039 }
```

References Engine::add(), balls, eng, Ball::setMoveVectorBase(), and Ball::setPositon().

Referenced by main(), and throwBallPlayer().

Here is the call graph for this function:



Here is the caller graph for this function:

9.40.1.13 throwBallPlayer()

```
void throwBallPlayer ( )
```

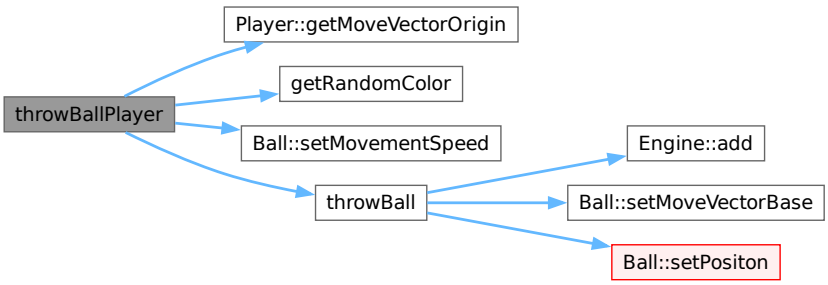
Definition at line 47 of file test2/main.cpp.

```
00047                           {
00048   Ball *bal{throwBall(
00049       static_cast<Point2d>(
00050           player.GameObject::getPosition() +
00051           static_cast<Point2d>(player.sf::Sprite::getTextureRect().getSize()) *
00052               0.5),
00053       player.getMoveVectorOrigin())};
00054
00055   bal->setMovementSpeed(80);
00056   bal->setFillColor(getRandomColor());
00057 }
```

References Player::getMoveVectorOrigin(), getRandomColor(), player, Ball::setMovementSpeed(), and throwBall().

Referenced by keyPressedEventHandler().

Here is the call graph for this function:



Here is the caller graph for this function:

9.40.2 Variable Documentation

9.40.2.1 balls

```
std::list<Ball *> balls
```

Definition at line 30 of file test2/main.cpp.

Referenced by handleBalls(), and throwBall().

9.40.2.2 bush

```
std::array<Bush, 4> bush {}
```

Definition at line 27 of file test2/main.cpp.
```
00027 {};
```

Referenced by initializeBush().

9.40.2.3 eng

```
Engine& eng = Engine::getInstance()
```

Definition at line 28 of file test2/main.cpp.

Referenced by addSomeRenderables(), initializeBush(), initializeFidgetSpinner(), initialziePlayer(), keyPressedEventHandler(), main(), and throwBall().

9.40.2.4 fidgetSpinner

```
FidgetSpinner fidgetSpinner {"resource/fidgetSpinner"}
```

Definition at line 29 of file test2/main.cpp.
```
00029 {"resource/fidgetSpinner"};
```

Referenced by initializeFidgetSpinner(), and spinTheFidget().

9.40.2.5 player

```
GamePlayer player {}
```

Definition at line 26 of file test2/main.cpp.
```
00026 {};
```

Referenced by handlePlayerMovement(), initialziePlayer(), keyPressedEventHandler(), keyReleasedEventHandler(), spinTheFidget(), and throwBallPlayer().

9.41 test2/main.cpp

Go to the documentation of this file.

```
00001 #include "SFML/Graphics/Color.hpp"
00002 #include "SFML/Graphics/Rect.hpp"
00003 #include "SFML/Graphics/Sprite.hpp"
00004 #include "SFML/Graphics/Texture.hpp"
00005 #include "SFML/System/Vector2.hpp"
00006 #include "SFML/Window/Event.hpp"
00007 #include "SFML/Window/Keyboard.hpp"
00008 #include "animatedObject.hpp"
00009 #include "animatedSpriteSheet.hpp"
00010 #include "ball.hpp"
00011 #include "bush.hpp"
00012 #include "engine.hpp"
00013 #include "fidgetSpinner.hpp"
00014 #include "gamePlayer.hpp"
00015 #include "log.hpp"
00016 #include "player.hpp"
00017 #include "point2d.hpp"
00018 #include <cstdlib>
00019 #include <iostream>
00020 #include <list>
00021 #include <random>
00022 #include <utility>
00023
00024 using sf::IntRect;
00025
00026 GamePlayer player{};
00027 std::array<Bush, 4> bush{};
00028 Engine &eng = Engine::getInstance();
00029 FidgetSpinner fidgetSpinner{"resource/fidgetSpinner"};
00030 std::list<Ball *> balls;
00031
00032 Ball *throwBall(Point2d pos, Point2d vector) {
00033   Ball *bal = new Ball();
00034   bal->setPositon(pos);
00035   bal->setMoveVectorBase(vector);
00036   balls.push_back(bal);
00037   eng.add(bal);
00038   return bal;
00039 }
00040
00041 sf::Color getRandomColor() {
00042   return {static_cast<sf::Uint8>(rand() % 256),
00043           static_cast<sf::Uint8>(rand() % 256),
00044           static_cast<sf::Uint8>(rand() % 256)};
00045 }
00046
00047 void throwBallPlayer() {
00048   Ball *bal{throwBall(
00049       static_cast<Point2d>(
00050           player.GameObject::getPosition() +
00051           static_cast<Point2d>(player.sf::Sprite::getTextureRect().getSize()) *
00052               0.5),
00053       player.getMoveVectorOrigin())};
00054
00055   bal->setMovementSpeed(80);
00056   bal->setFillColor(getRandomColor());
00057 }
00058
00059 void initialziePlayer() {
00060   LOGINFON;
00061   player.setMovementSpeed(50);
00062   player.setColor(sf::Color::Yellow);
00063   eng.add(&player);
00064 }
00065
00066 void initializeBush() {
00067   for (ssize_t i{}; i < bush.max_size(); ++i) {
00068     LOGINFO « i « '\n';
00069     eng.add(&(bush[i]));
00070   }
00071   bush[0].setPosition({300, 150});
00072   bush[1].setPosition({700, 550});
00073   bush[2].setPosition({100, 450});
00074   bush[3].setPosition({800, 250});
00075 }
00076
00077 void handlePlayerMovement() { player.update(); }
00078
00079 void handleBalls() {
00080
00081   for (auto it{balls.begin()}; it != balls.end();) {
00082     auto it2{it};
```

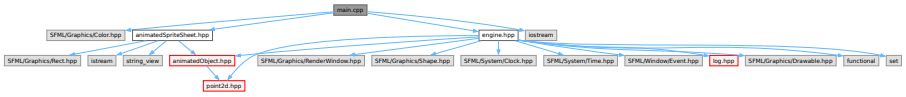
```
00083     ++it;
00084     Ball *b = *it2;
00085     b->update();
00086     if (b->isDead()) {
00087       Engine::getInstance().remove(b);
00088       balls.remove(b);
00089       delete b;
00090     }
00091   }
00092 }
00093
00094 void customLoop() {
00095   handlePlayerMovement();
00096   handleBalls();
00097 }
00098
00099 void spinTheFidget() {
00100
00101   Point2d pla{Point2d(player.sf::Sprite::getPosition()) +
00102               Point2d{player.sf::Sprite::getTextureRect().getSize()} * 0.5};
00103   Point2d fig{Point2d{fidgetSpinner.sf::Sprite::getPosition()} +
00104               Point2d{fidgetSpinner.getTextureRect().getSize()} * 0.5};
00105
00106   float dist(pla.distanceTo(fig));
00107
00108   LOGINFO « dist « '\n';
00109   if (dist < 300) {
00110     fidgetSpinner.addRotationSpeed(8);
00111   }
00112 }
00113
00114 void keyPressedEventHandler(const sf::Event &ev) {
00115   switch (ev.key.code) {
00116   case sf::Keyboard::W:
00117     player.setIsMoving(Player::MoveDirection::north);
00118     break;
00119   case sf::Keyboard::A:
00120     player.setIsMoving(Player::MoveDirection::west);
00121     break;
00122   case sf::Keyboard::S:
00123     player.setIsMoving(Player::MoveDirection::south);
00124     break;
00125   case sf::Keyboard::D:
00126     player.setIsMoving(Player::MoveDirection::east);
00127     break;
00128
00129   case sf::Keyboard::F:
00130     throwBallPlayer();
00131     break;
00132   case sf::Keyboard::Space:
00133     spinTheFidget();
00134     break;
00135   case sf::Keyboard::Escape:
00136     eng.getWindow().close();
00137     break;
00138
00139   default:
00140     break;
00141   }
00142 }
00143
00144 void keyReleasedEventHandler(const sf::Event &ev) {
00145   switch (ev.key.code) {
00146   case sf::Keyboard::W:
00147     player.stopMoving(Player::MoveDirection::north);
00148     break;
00149   case sf::Keyboard::A:
00150     player.stopMoving(Player::MoveDirection::west);
00151     break;
00152   case sf::Keyboard::S:
00153     player.stopMoving(Player::MoveDirection::south);
00154     break;
00155   case sf::Keyboard::D:
00156     player.stopMoving(Player::MoveDirection::east);
00157     break;
00158   default:
00159     break;
00160   }
00161 }
00162
00163 void initializeFidgetSpinner() {
00164   fidgetSpinner.setPosition({600, 600});
00165   eng.add(&fidgetSpinner);
00166 }
00167
00168 int main() {
00169   LOGTRACEN;
```

```
00170   eng.setWindowTitle("dev").setMaxFps(75).buildWindow();
00171   eng.setEventHandler(sf::Event::KeyPressed, keyPressedEventHandler);
00172   eng.setEventHandler(sf::Event::KeyReleased, keyReleasedEventHandler);
00173   eng.setLoopFunction(customLoop);
00174
00175   initialziePlayer();
00176   initializeBush();
00177   initializeFidgetSpinner();
00178   throwBall({100, 0}, {1, 1});
00179
00180   eng.loop();
00181 }
```

9.42 test3/main.cpp File Reference

```
#include "SFML/Graphics/Color.hpp"
#include "animatedSpriteSheet.hpp"
#include "engine.hpp"
#include <iostream>
```

Include dependency graph for test3/main.cpp:



Namespaces

- namespace G

Functions

- int main ()

Variables

- std::string G::basePath = "resources/"
- AnimatedSpriteSheet animation (G::basePath+"animation")

9.42.1 Function Documentation

9.42.1.1 main()

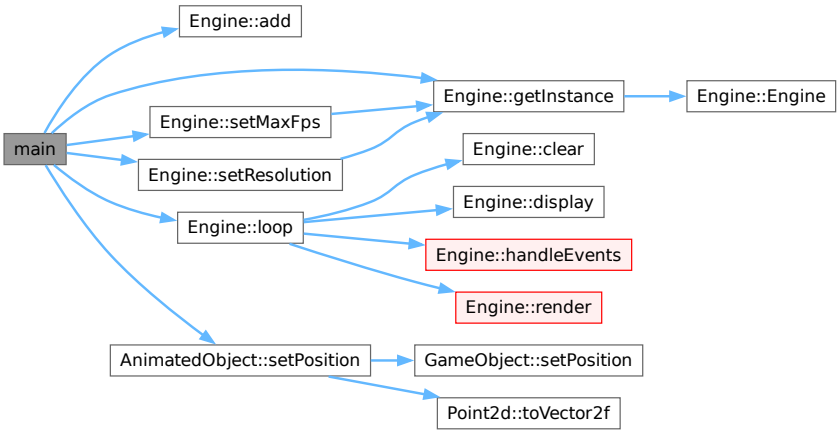
```
int main ( )
```

Definition at line 12 of file test3/main.cpp.

```
00012           {
00013   Engine::getInstance().setMaxFps(3).setResolution({1000, 1000}).buildWindow();
00014
00015   animation.setPosition({300, 300});
00016   animation.setColor(sf::Color::Cyan);
00017
00018   Engine::getInstance().add(&animation);
00019
00020   Engine::getInstance().loop();
00021 }
```

References Engine::add(), animation, Engine::getInstance(), Engine::loop(), Engine::setMaxFps(), AnimatedObject::setPosition(), and Engine::setResolution().

Here is the call graph for this function:



9.42.2 Variable Documentation

9.42.2.1 animation

```
AnimatedSpriteSheet animation(G::basePath+"animation") (
            G::basePath+"animation"  )
```

Referenced by main(), and GamePlayer::update().

9.43 test3/main.cpp

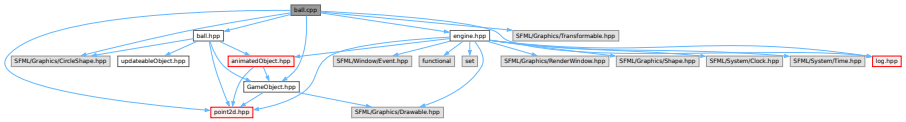
Go to the documentation of this file.

```
00001 #include "SFML/Graphics/Color.hpp"
00002 #include "animatedSpriteSheet.hpp"
00003 #include "engine.hpp"
00004 #include <iostream>
00005
00006 namespace G {
00007 std::string basePath = "resources/";
00008 }; // namespace G
00009
00010 AnimatedSpriteSheet animation(G::basePath + "animation");
00011
00012 int main() {
00013   Engine::getInstance().setMaxFps(3).setResolution({1000, 1000}).buildWindow();
00014
00015   animation.setPosition({300, 300});
00016   animation.setColor(sf::Color::Cyan);
00017
00018   Engine::getInstance().add(&animation);
00019
00020   Engine::getInstance().loop();
00021 }
```

9.44 ball.cpp File Reference

```
#include "ball.hpp"
#include "GameObject.hpp"
#include "SFML/Graphics/CircleShape.hpp"
#include "SFML/Graphics/Transformable.hpp"
#include "engine.hpp"
#include "log.hpp"
#include "point2d.hpp"
```

Include dependency graph for ball.cpp:



9.45 ball.cpp

Go to the documentation of this file.

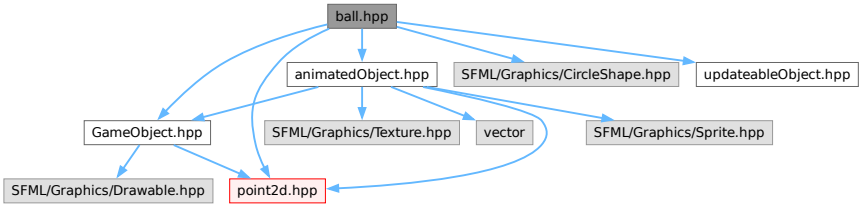
```
00001 #include "ball.hpp"
00002 #include "GameObject.hpp"
00003 #include "SFML/Graphics/CircleShape.hpp"
00004 #include "SFML/Graphics/Transformable.hpp"
00005 #include "engine.hpp"
00006 #include "log.hpp"
00007 #include "point2d.hpp"
00008
00009 Ball::Ball(float radius, std::size_t pointCount)
00010     : sf::CircleShape(radius, pointCount) {}
00011
00012 void Ball::setMovementSpeed(float movementSpeed) {
00013   m_movementSpeed = movementSpeed;
00014 }
00015
00016 void Ball::setMoveVectorBase(Point2d moveVectorBase) {
00017   m_moveVectorBase = moveVectorBase;
00018 }
00019
00020 void Ball::move(Point2d vector) {
00021   GameObject::move(vector);
00022   sf::CircleShape::move(vector.toVector2f());
00023 }
00024
00025 void Ball::setPositon(Point2d pos) {
00026   GameObject::setPosition(pos);
00027   sf::Transformable::setPosition(pos.toVector2f());
00028 }
00029
00030 bool Ball::isDead() const { return m_dead; }
00031
00032 void Ball::update() {
00033   if (m_timeToLife <= 0) {
00034     m_dead = true;
00035     return;
00036   }
00037   m_timeToLife -= Engine::getInstance().getLastFrameDuration().asSeconds();
00038
00039   move(getMoveVector() *
00040        Engine::getInstance().getLastFrameDuration().asSeconds());
00041 }
00042
00043 Point2d Ball::getMoveVector() { return {m_moveVectorBase * m_movementSpeed}; }
```

9.46 ball.hpp File Reference

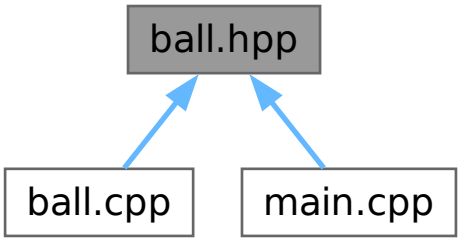
```
#include "GameObject.hpp"
#include "SFML/Graphics/CircleShape.hpp"
```

```
#include "animatedObject.hpp"
#include "point2d.hpp"
#include "updateableObject.hpp"
```

Include dependency graph for ball.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class Ball

9.47 ball.hpp

Go to the documentation of this file.

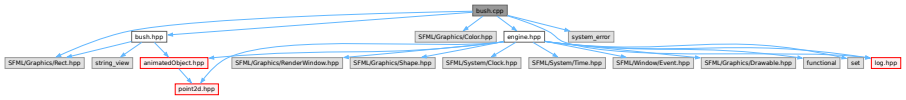
```
00001 #ifndef BALL_HPP_
00002 #define BALL_HPP_
00003
00004 #include "GameObject.hpp"
00005 #include "SFML/Graphics/CircleShape.hpp"
00006 #include "animatedObject.hpp"
00007 #include "point2d.hpp"
00008 #include "updateableObject.hpp"
00009
00010 class Ball : public GameObject,
00011              public sf::CircleShape,
00012              public UpdateableObject {
00013 public:
00014   Ball(float radius = 10, std::size_t pointCount = 30);
00015
00016   void setMovementSpeed(float movementSpeed);
00017   void setMoveVectorBase(Point2d moveVectorOrigin);
00018
00019   virtual void update();
00020   virtual void move(Point2d vector);
```

```
00021   virtual void setPositon(Point2d pos);
00022
00023   bool isDead() const;
00024
00025 private:
00026   Point2d getMoveVector();
00027
00028 private:
00029   float m_movementSpeed{10};
00030   Point2d m_moveVectorBase{};
00031   float m_timeToLife{15};
00032   bool m_dead{false};
00033 };
00034
00035 #endif // BALL_HPP_
```

9.48 bush.cpp File Reference

```
#include "bush.hpp"
#include "SFML/Graphics/Color.hpp"
#include "SFML/Graphics/Rect.hpp"
#include "engine.hpp"
#include "log.hpp"
#include <system_error>
```

Include dependency graph for bush.cpp:



9.49 bush.cpp

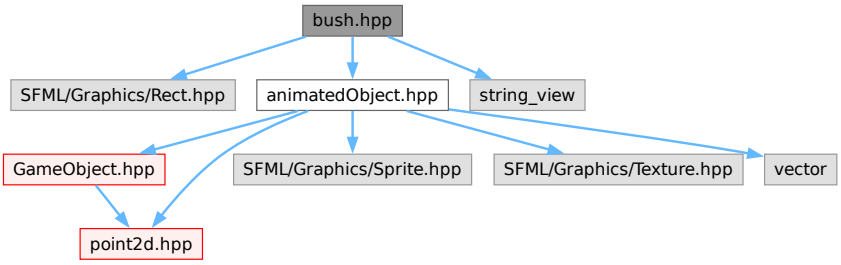
Go to the documentation of this file.

```
00001 #include "bush.hpp"
00002 #include "SFML/Graphics/Color.hpp"
00003 #include "SFML/Graphics/Rect.hpp"
00004 #include "engine.hpp"
00005 #include "log.hpp"
00006 #include <system_error>
00007
00008 Bush::~Bush(){};
00009
00010 Bush::Bush() {
00011   LOGINFON;
00012   loadFromFile(std::string(s_spriteSheetPath), sf::IntRect{0, 0, 300, 150});
00013   setTexture(*this);
00014   setTextureRect(getCurrentSpriteRectangle(0));
00015 }
00016
00017 void Bush::animate() {
00018   m_animationTimer += Engine::getInstance().getLastFrameDuration().asSeconds();
00019   if (m_animationTimer < m_animationFrameDuration)
00020     return;
00021
00022   m_animationTimer = 0;
00023   nextSprite();
00024 }
00025
00026 void Bush::nextSprite() {
00027   this->setTextureRect(getCurrentSpriteRectangle(m_aninmationFrameIndicator));
00028   ++m_aninmationFrameIndicator;
00029   m_aninmationFrameIndicator %= 2;
00030 }
00031
00032 sf::IntRect Bush::getCurrentSpriteRectangle(int frameNumber) {
00033   return sf::IntRect{frameNumber * 150, 0, 150, 150};
00034 }
```

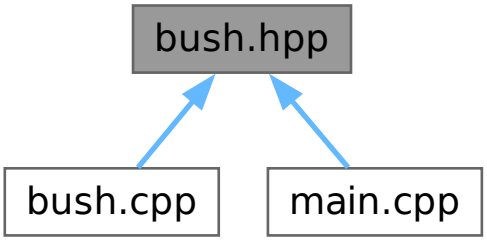
9.50 bush.hpp File Reference

```
#include "SFML/Graphics/Rect.hpp"
#include "animatedObject.hpp"
#include <string_view>
```

Include dependency graph for bush.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class Bush

9.51 bush.hpp

Go to the documentation of this file.

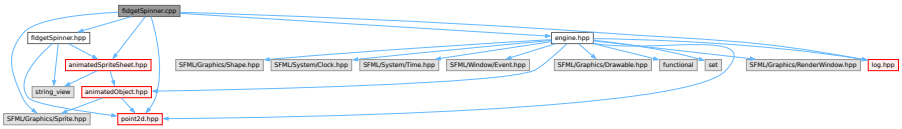
```
00001 #ifndef BUSH_HPP_
00002 #define BUSH_HPP_
00003
00004 #include "SFML/Graphics/Rect.hpp"
00005 #include "animatedObject.hpp"
00006 #include <string_view>
00007
00008 class Bush : public AnimatedObject {
00009   static constexpr std::string_view s_spriteSheetPath{"resource/bush/bush.png"};
00010   int m_aninmationFrameIndicator{};
00011   float m_animationFrameDuration{1};
00012   float m_animationTimer{};
```

```
00013
00014 public:
00015   Bush();
00016   ~Bush();
00017
00018   virtual void animate();
00019
00020 private:
00021   void nextSprite();
00022   sf::IntRect getCurrentSpriteRectangle(int frameNumber);
00023 };
00024
00025 #endif // BUSH_HPP_
```

9.52 fidgetSpinner.cpp File Reference

```
#include "fidgetSpinner.hpp"
#include "SFML/Graphics/Sprite.hpp"
#include "animatedSpriteSheet.hpp"
#include "engine.hpp"
#include "log.hpp"
#include "point2d.hpp"
```

Include dependency graph for fidgetSpinner.cpp:



9.53 fidgetSpinner.cpp

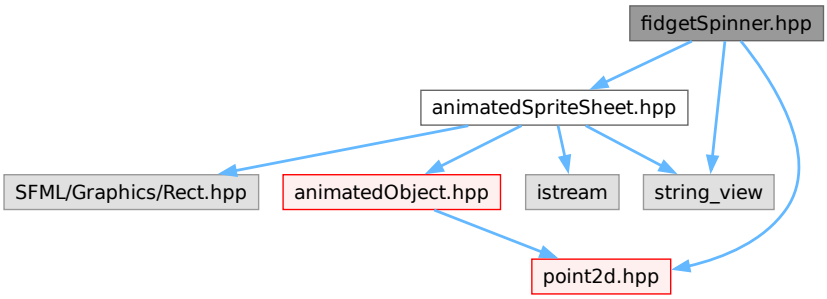
Go to the documentation of this file.

```
00001 #include "fidgetSpinner.hpp"
00002 #include "SFML/Graphics/Sprite.hpp"
00003 #include "animatedSpriteSheet.hpp"
00004 #include "engine.hpp"
00005 #include "log.hpp"
00006 #include "point2d.hpp"
00007
00008 FidgetSpinner::FidgetSpinner(std::string_view path)
00009     : AnimatedSpriteSheet(path) {
00010   LOGINFON;
00011
00012   Point2d offset(getSize().x / 2.f + 0.5f, getSize().y / 2.f + 0.5f);
00013   setOrigin(offset.toVector2f());
00014 };
00015
00016 void FidgetSpinner::animate() {
00017   m_angle += m_rotationspeed *
00018              Engine::getInstance().getLastFrameDuration().asSeconds();
00019   setRotation(m_angle);
00020
00021   if (m_rotationspeed > 0) {
00022     m_rotationspeed -= m_rotationResistance + m_rotationspeed / 500;
00023     if (m_rotationspeed < 0)
00024       m_rotationspeed = 0;
00025   }
00026 }
00027
00028 Point2d FidgetSpinner::getCenterPoint() const {
00029   Point2d point{getCurrentAnimationFrameData().m_position +
00030                 getCurrentAnimationFrameData().m_size * 0.5};
00031
00032   return point;
00033 }
00034
00035 void FidgetSpinner::addRotationSpeed(float speed) { m_rotationspeed += speed; }
00036
00037 void FidgetSpinner::setRotationResistance(float speed) {
00038   m_rotationResistance = speed;
00039 }
```

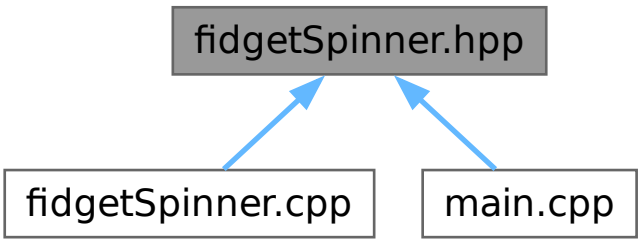
9.54 fidgetSpinner.hpp File Reference

```
#include "animatedSpriteSheet.hpp"
#include "point2d.hpp"
#include <string_view>
```

Include dependency graph for fidgetSpinner.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class FidgetSpinner

9.55 fidgetSpinner.hpp

Go to the documentation of this file.

```
00001 #ifndef FIDGETSPINNER_HPP_
00002 #define FIDGETSPINNER_HPP_
00003
00004 #include "animatedSpriteSheet.hpp"
00005 #include "point2d.hpp"
00006 #include <string_view>
00007
00008 class FidgetSpinner : public AnimatedSpriteSheet {
00009
```

```
00010 public:
00011   FidgetSpinner(std::string_view path);
00012
00013   virtual void animate() override;
00014
00015   Point2d getCenterPoint() const;
00016
00017   void addRotationSpeed(float speed);
00018
00019   void setRotationResistance(float speed);
00020
00021 private:
00022   float m_rotationResistance{0.1};
00023   float m_rotationspeed{0};
00024   float m_angle{};
00025 };
00026
00027 #endif // FIDGETSPINNER_HPP_
```

9.56 gamePlayer.cpp File Reference

```
#include "gamePlayer.hpp"
#include "SFML/Graphics/Rect.hpp"
#include "SFML/Graphics/Sprite.hpp"
#include "animatedObject.hpp"
#include "engine.hpp"
#include "log.hpp"
#include "player.hpp"
#include "point2d.hpp"
#include <cmath>
#include <sys/types.h>
```

Include dependency graph for gamePlayer.cpp:

9.57 gamePlayer.cpp

Go to the documentation of this file.

```
00001
00002 #include "gamePlayer.hpp"
00003 #include "SFML/Graphics/Rect.hpp"
00004 #include "SFML/Graphics/Sprite.hpp"
00005 #include "animatedObject.hpp"
00006 #include "engine.hpp"
00007 #include "log.hpp"
00008 #include "player.hpp"
00009 #include "point2d.hpp"
00010 #include <cmath>
00011 #include <sys/types.h>
00012
00013 // #define NOTRACE
00014
00015 GamePlayer::GamePlayer() {
00016   LOGINFON;
00017   loadFromFile(
00018       std::string(s_spriteSheetPath),
00019       sf::IntRect{0, 0, 4 * 300, static_cast<int>(AnimationType::count) * 300});
00020   setTexture(*this);
00021   setTextureRect(getCurrentAnimationFrameSpriteRectangle());
00022 }
00023
```

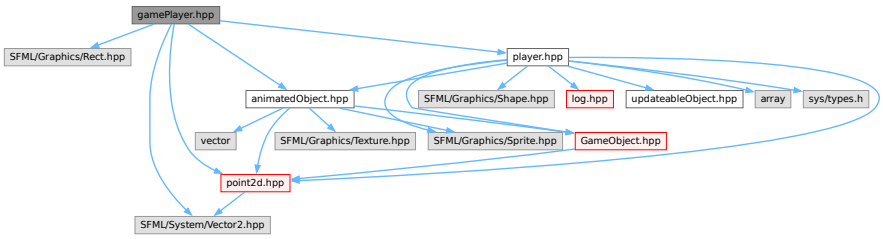
```
00024 sf::IntRect GamePlayer::getCurrentAnimationFrameSpriteRectangle() const {
00025   sf::IntRect result{m_aninmationFrameIndicator * 300,
00026                      getRowOfAnimation() * 300, 300, 300};
00027   // LOGINFO « result.top « '\t' « result.left « '\n';
00028   return result;
00029 }
00030
00031 void GamePlayer::animate() {
00032   m_animationTimer += Engine::getInstance().getLastFrameDuration().asSeconds();
00033   // wait for next frame change
00034   if (m_animationTimer < m_animationFrameDuration)
00035     return;
00036   // reset timer
00037   m_animationTimer = 0;
00038   // do frame changing
00039   nextAnimationFrame();
00040 }
00041
00042 void GamePlayer::update() {
00043   Player::update();
00044
00045   // Handle animation update
00046   AnimationType animation = AnimationType::standing;
00047
00048   if (isMoving()) {
00049     // if is moving diagonally
00050     if (isMovingDiagonaly()) {
00051       animation = AnimationType::moveSpecial;
00052     } else {
00053       // check if is moving in any single direction
00054       for (int i{}; i < static_cast<int>(MoveDirection::count); ++i) {
00055         MoveDirection moveDir{static_cast<MoveDirection>(i)};
00056         if (isMoving(moveDir)) {
00057           animation = getAnimationTypeOf(moveDir);
00058           break;
00059         }
00060       }
00061     }
00062   }
00063
00064   setAnimationType(animation);
00065 }
00066
00067 int GamePlayer::getFrameCountOfAnimation(AnimationType type) const {
00068   switch (type) {
00069   case AnimationType::standing:
00070     return 4;
00071   case AnimationType::moveNorth:
00072     return 4;
00073   case AnimationType::moveEast:
00074     return 4;
00075   case AnimationType::moveSouth:
00076     return 4;
00077   case AnimationType::moveWest:
00078     return 4;
00079   case AnimationType::moveSpecial:
00080     return 4;
00081   default:
00082     LOGWARN « "Animation type not handled!\n";
00083     return 0;
00084     break;
00085   }
00086 }
00087
00088 void GamePlayer::setAnimationType(GamePlayer::AnimationType type) {
00089   // Do no reset current animation if new is same.
00090   if (type == m_animationType)
00091     return;
00092   m_animationType = type;
00093   m_aninmationFrameIndicator = 0;
00094   m_animationTimer = 0;
00095   nextAnimationFrame();
00096 };
00097
00098 GamePlayer::AnimationType
00099 GamePlayer::getAnimationTypeOf(MoveDirection moveDirection) const {
00100   switch (moveDirection) {
00101   case Player::MoveDirection::north:
00102     return AnimationType::moveNorth;
00103   case Player::MoveDirection::east:
00104     return AnimationType::moveEast;
00105   case Player::MoveDirection::south:
00106     return AnimationType::moveSouth;
00107   case Player::MoveDirection::west:
00108     return AnimationType::moveWest;
00109   default:
00110     LOGWARN « "UNHANDLED\n";
```

```
00111     break;
00112   }
00113   return AnimationType::standing;
00114 }
00115
00116 void GamePlayer::nextAnimationFrame() {
00117   updateTextureRect();
00118   ++m_aninmationFrameIndicator;
00119   m_aninmationFrameIndicator %= getFrameCountOfAnimation(m_animationType);
00120   // LOGINFO « "Frame: " « m_aninmationFrameIndicator
00121   //         « " Type: " « static_cast<int>(m_animationType) « '\n';
00122 };
00123
00124 void GamePlayer::updateTextureRect() {
00125   this->setTextureRect(getCurrentAnimationFrameSpriteRectangle());
00126 }
00127
00128 int GamePlayer::getRowOfAnimation() const {
00129   switch (m_animationType) {
00130   case AnimationType::standing:
00131     return 0;
00132   case AnimationType::moveNorth:
00133     return 1;
00134   case AnimationType::moveEast:
00135     return 2;
00136   case AnimationType::moveSouth:
00137     return 3;
00138   case AnimationType::moveWest:
00139     return 4;
00140   case AnimationType::moveSpecial:
00141     return 5;
00142   default:
00143     LOGWARN « "not handled\n";
00144     return 0;
00145   };
00146 };
```

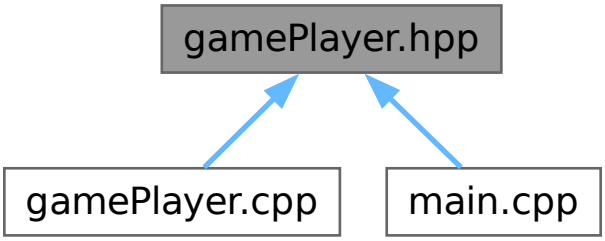
9.58 gamePlayer.hpp File Reference

```
#include "SFML/Graphics/Rect.hpp"
#include "SFML/System/Vector2.hpp"
#include "animatedObject.hpp"
#include "player.hpp"
#include "point2d.hpp"
```

Include dependency graph for gamePlayer.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class GamePlayer

9.59 gamePlayer.hpp

Go to the documentation of this file.

```
00001 #ifndef GAMEPLAYER_H_
00002 #define GAMEPLAYER_H_
00003
00004 #include "SFML/Graphics/Rect.hpp"
00005 #include "SFML/System/Vector2.hpp"
00006 #include "animatedObject.hpp"
00007 #include "player.hpp"
00008 #include "point2d.hpp"
00009
00010 class GamePlayer : public Player {
00011 public:
00012   static constexpr std::string_view s_spriteSheetPath{
00013       "resource/player/spritesheet.png"};
00014
00015   enum class AnimationType {
00016     standing,
00017     moveNorth,
00018     moveEast,
00019     moveSouth,
00020     moveWest,
00021     moveSpecial,
00022     count
00023   };
00024
00025 public:
00026   GamePlayer();
00027
00028   virtual void animate() override;
00029   virtual void update() override;
00030
00031 private:
00032   int m_aninmationFrameIndicator{};
00033   float m_animationFrameDuration{.5};
00034   float m_animationTimer{};
00035   AnimationType m_animationType{AnimationType::standing};
00036
00037   void nextAnimationFrame();
00038   void updateTextureRect();
00039
00040   void setAnimationType(AnimationType type);
00041
00042   AnimationType getAnimationTypeOf(MoveDirection moveDirection) const;
00043   int getFrameCountOfAnimation(AnimationType type) const;
00044   sf::IntRect getCurrentAnimationFrameSpriteRectangle() const;
00045   int getRowOfAnimation() const;
00046 };
00047
00048 #endif // GAMEPLAYER_H_
```

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