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## Plant Stalk Measurement Device

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# **Chapter 1**

# Namespace Index

## 1.1 Namespace List

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2 Namespace Index

# **Chapter 2**

# **Hierarchical Index**

## 2.1 Class Hierarchy

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

App
main.MainApp
FocusBehavior
NoteScreen.SelectableRecycleBoxLayout
Label
NoteScreen.SelectableLabel
LayoutSelectionBehavior
NoteScreen.SelectableRecycleBoxLayout
RecycleBoxLayout
NoteScreen.SelectableRecycleBoxLayout
RecycleDataViewBehavior
NoteScreen.SelectableLabel
Screen
ColorsScreen.ColorsScreen
ExitScreen.ExitScreen
HeightScreen.HeightScreen
LiveFeedScreen.LiveFeedScreen
MainScreen.MainScreen
NewNoteScreen.NewNoteScreen
NoteScreen.NoteScreen
OperatorScreen.OperatorScreen
PlotScreen.PlotScreen
SensorsScreen.SensorsScreen
SettingsScreen.SettingsScreen
UpdateScreen.UpdateScreen
ScreenManager
main.GranuScreenManager

4 Hierarchical Index

# **Chapter 3**

# **Class Index**

## 3.1 Class List

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

ColorsScreen.ColorsScreen
ExitScreen.ExitScreen
main.GranuScreenManager
HeightScreen.HeightScreen
LiveFeedScreen.LiveFeedScreen
main.MainApp
MainScreen.MainScreen
NewNoteScreen.NewNoteScreen
NoteScreen.NoteScreen
OperatorScreen.OperatorScreen
PlotScreen.PlotScreen
NoteScreen.SelectableLabel
NoteScreen.SelectableRecycleBoxLayout
SensorsScreen.SensorsScreen 29
SettingsScreen.SettingsScreen
UpdateScreen.UpdateScreen 30

6 Class Index

# **Chapter 4**

# File Index

## 4.1 File List

Here is a list of all files with brief descriptions:

src/configurator.py
src/main.py
src/view/keyboardManager.py
src/view/screens/ExitScreen.py
src/view/screens/LiveFeedScreen.py
src/view/screens/MainScreen.py
src/view/screens/SettingsScreen.py
src/view/screens/settings/ColorsScreen.py
src/view/screens/settings/HeightScreen.py
src/view/screens/settings/NewNoteScreen.py
src/view/screens/settings/NoteScreen.py
src/view/screens/settings/OperatorScreen.py
src/view/screens/settings/PlotScreen.py
src/view/screens/settings/SensorsScreen.py
src/view/screens/settings/UpdateScreen.py

8 File Index

## **Chapter 5**

# **Namespace Documentation**

## 5.1 ColorsScreen Namespace Reference

#### Classes

class ColorsScreen

## 5.2 configurator Namespace Reference

#### **Functions**

- def load ()
- def save ()
- def set (key, value)
- def get (key, default)

#### **Variables**

- string CONFIG\_FILE = 'config.json'
- dictionary data = {}

#### 5.2.1 Detailed Description

The configurator module adds an interface to read to and write from the configuration file ('config.json'). Reading and writing settings to the configuration file allows the configuration to persist beyond the application lifecycle.

#### 5.2.2 Function Documentation

#### 5.2.2.1 get()

```
def configurator.get ( key, \\ default \; ) Get a value from the configuration JSON file using a key. If the value does not exist, save the default value into the JSON file and return the default.
```

Definition at line 34 of file configurator.py.

#### 5.2.2.2 load()

```
def configurator.load ( )
Loads data from the configuration file, if it exists.
```

Definition at line 14 of file configurator.py.

#### 5.2.2.3 save()

```
\mbox{def configurator.save} ( ) \mbox{Saves data to the configuration file.}
```

Definition at line 23 of file configurator.py.

#### 5.2.2.4 set()

```
def configurator.set ( key, \\ value \; ) Set a key to value in the configuration JSON file.
```

Definition at line 28 of file configurator.py.

#### 5.2.3 Variable Documentation

#### 5.2.3.1 CONFIG\_FILE

```
string configurator.CONFIG_FILE = 'config.json'
```

Definition at line 10 of file configurator.py.

#### 5.2.3.2 data

```
dictionary configurator.data = {}
```

Definition at line 12 of file configurator.py.

#### 5.3 ExitScreen Namespace Reference

#### Classes

class ExitScreen

#### 5.3.1 Detailed Description

Four buttons to select from: Back, Exit, Restart, and Shut Down

## 5.4 HeightScreen Namespace Reference

#### Classes

· class HeightScreen

#### 5.4.1 Detailed Description

An input text box that, when selected, allows the user to type in the current Height setting via a touch screen number pad that will pop up. The value in the input text box when you first visit this view is whatever value for the Height setting is currently stored in our settings file.

## 5.5 keyboardManager Namespace Reference

#### **Functions**

• def showKeyboard (caller, layout)

#### **Variables**

• keyboard = None

#### 5.5.1 Detailed Description

The keyboard manager adds the ability to change keyboard layouts depending on the current screen. For example, the plot number screen uses a "numeric" keyboard (number pad), while the operator uses a "text" keyboard (qwerty).

#### 5.5.2 Function Documentation

#### 5.5.2.1 showKeyboard()

Shows a keyboard with the specified layout.

The folder view/keyboard\_layouts contains keyboard layouts used in this software, including 'numeric' (number pad) and 'text' (qwerty). These are custom keyboard layouts. Kivy contains its own keyboard layouts; however, Kivy's layouts are designed for multi-touch screens.

Definition at line 11 of file keyboardManager.py.

#### 5.5.3 Variable Documentation

#### 5.5.3.1 keyboard

keyboardManager.keyboard = None

Definition at line 9 of file keyboardManager.py.

## 5.6 LiveFeedScreen Namespace Reference

#### Classes

• class LiveFeedScreen

#### 5.6.1 Detailed Description

Shows all data: Temperature, Humidity, Location, Time, and all Sensor data

## 5.7 main Namespace Reference

#### Classes

- class GranuScreenManager
- class MainApp

## 5.8 MainScreen Namespace Reference

#### Classes

class MainScreen

#### 5.8.1 Detailed Description

```
The main screen contains four buttons for navigation: Settings, Testing, Live Feed, and Exit
```

It also shows environment data: Temperature, Humidity, Location, and Time.

## 5.9 NewNoteScreen Namespace Reference

#### Classes

• class NewNoteScreen

#### 5.9.1 Detailed Description

An input text box that, when selected, allows the user to type in a new note via a touch screen keyboard that will pop up. The input text box will initially be empty.

## 5.10 NoteScreen Namespace Reference

#### Classes

- class NoteScreen
- · class SelectableLabel
- class SelectableRecycleBoxLayout

#### 5.10.1 Detailed Description

Three columns will be displayed holding different types of notes - Pre-Test Notes, Post-Test Notes, and Notes Bank. Each column will be filled with notes that are assigned to them based on data from our settings file

Two buttons to select from at all times: New Note and Back

Three additional buttons to select from when a note in the Notes Bank column is selected: Make Pre-Test Note, Make Post-Test Note, and Delete Note

One additional button to select from when a note in the Pre-Test Notes column is selected: Remove Note

One additional button to select from when a note in the Post-Test Notes column is selected: Remove Note

#### 5.11 OperatorScreen Namespace Reference

#### **Classes**

class OperatorScreen

#### 5.11.1 Detailed Description

An input text box that, when selected, allows the user to type in the current Operator setting via a touch screen keyboard that will pop up. The value in the input text box when you first visit this view is whatever value for the Operator setting is currently stored in our settings file .

#### 5.12 PlotScreen Namespace Reference

#### **Classes**

class PlotScreen

#### 5.12.1 Detailed Description

An input text box that, when selected, allows the user to type in the current Plot setting via a touch screen number pad that will pop up. The value in the input text box when you first visit this view is whatever value for the Plot setting is currently stored in our settings file.

#### 5.13 SensorsScreen Namespace Reference

#### Classes

• class SensorsScreen

## 5.14 SettingsScreen Namespace Reference

#### Classes

• class SettingsScreen

#### 5.14.1 Detailed Description

From the settings screen you can navigate to these options: Height, Plot, Operator, Folder, Notes

## 5.15 UpdateScreen Namespace Reference

#### Classes

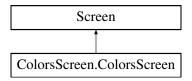
• class UpdateScreen

## **Chapter 6**

## **Class Documentation**

## 6.1 ColorsScreen.ColorsScreen Class Reference

Inheritance diagram for ColorsScreen.ColorsScreen:



#### 6.1.1 Detailed Description

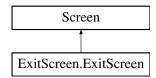
Definition at line 6 of file ColorsScreen.py.

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

• src/view/screens/settings/ColorsScreen.py

## 6.2 ExitScreen.ExitScreen Class Reference

Inheritance diagram for ExitScreen. ExitScreen:



18 Class Documentation

#### 6.2.1 Detailed Description

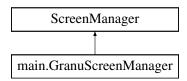
Definition at line 10 of file ExitScreen.py.

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

• src/view/screens/ExitScreen.py

## 6.3 main.GranuScreenManager Class Reference

Inheritance diagram for main.GranuScreenManager:



#### 6.3.1 Detailed Description

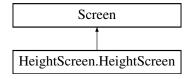
Definition at line 6 of file main.py.

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

• src/main.py

## 6.4 HeightScreen.HeightScreen Class Reference

Inheritance diagram for HeightScreen. HeightScreen:



#### **Public Member Functions**

- def on\_pre\_enter (self)
- def on enter (self)
- def save (self)

#### 6.4.1 Detailed Description

Definition at line 16 of file HeightScreen.py.

#### 6.4.2 Member Function Documentation

#### 6.4.2.1 on\_enter()

```
\label{eq:condition} $\operatorname{def HeightScreen.en_enter}$ \ ( $\operatorname{\it self}$ \ ) $$ \\ \text{Once the Screen loads, show a numeric keyboard and focus the TextInput}
```

Definition at line 23 of file HeightScreen.py.

#### 6.4.2.2 on\_pre\_enter()

```
def HeightScreen.HeightScreen.on_pre_enter ( self \ ) Before the Screen loads, read the configuration file to get the current height.
```

Definition at line 17 of file HeightScreen.py.

#### 6.4.2.3 save()

```
def HeightScreen.HeightScreen.save ( self \ ) Save button was pressed: save the new height in the configuration file
```

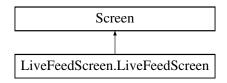
Definition at line 32 of file HeightScreen.py.

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

• src/view/screens/settings/HeightScreen.py

#### 6.5 LiveFeedScreen.LiveFeedScreen Class Reference

Inheritance diagram for LiveFeedScreen.LiveFeedScreen:



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#### 6.5.1 Detailed Description

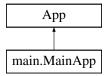
Definition at line 10 of file LiveFeedScreen.py.

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

• src/view/screens/LiveFeedScreen.py

## 6.6 main.MainApp Class Reference

Inheritance diagram for main.MainApp:



**Public Member Functions** 

• def build (self)

#### 6.6.1 Detailed Description

Definition at line 9 of file main.py.

#### 6.6.2 Member Function Documentation

#### 6.6.2.1 build()

```
\label{eq:continuous} \mbox{def main.MainApp.build (} \\ self \mbox{)}
```

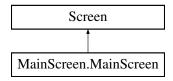
Definition at line 10 of file main.py.

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

• src/main.py

#### 6.7 MainScreen.MainScreen Class Reference

Inheritance diagram for MainScreen. MainScreen:



#### 6.7.1 Detailed Description

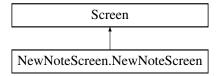
Definition at line 13 of file MainScreen.py.

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

• src/view/screens/MainScreen.py

#### 6.8 NewNoteScreen.NewNoteScreen Class Reference

Inheritance diagram for NewNoteScreen.NewNoteScreen:



#### **Public Member Functions**

- def on\_pre\_enter (self)
- def on\_enter (self)
- def save (self)

#### 6.8.1 Detailed Description

Definition at line 14 of file NewNoteScreen.py.

#### 6.8.2 Member Function Documentation

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#### 6.8.2.1 on\_enter()

```
def NewNoteScreen.NewNoteScreen.on_enter ( self \ ) Once the Screen loads, show a qwerty keyboard and focus the TextInput
```

Definition at line 19 of file NewNoteScreen.py.

```
6.8.2.2 on_pre_enter()

def NewNoteScreen.NewNoteScreen.on_pre_enter (
```

Definition at line 15 of file NewNoteScreen.py.

self )

```
6.8.2.3 save()
```

```
\label{eq:control_control_control} \mbox{def NewNoteScreen.save (} \\ self \mbox{)}
```

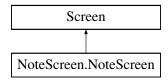
Definition at line 28 of file NewNoteScreen.py.

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

• src/view/screens/settings/NewNoteScreen.py

#### 6.9 NoteScreen.NoteScreen Class Reference

 $Inheritance\ diagram\ for\ NoteScreen. NoteScreen:$ 



#### **Public Member Functions**

• def on\_pre\_enter (self)

#### **Static Public Attributes**

```
• pre_test = ListProperty([])
```

- post\_test = ListProperty([])
- bank = ListProperty([])

#### 6.9.1 Detailed Description

Definition at line 69 of file NoteScreen.py.

#### 6.9.2 Member Function Documentation

```
6.9.2.1 on_pre_enter()
```

```
def NoteScreen.NoteScreen.on_pre_enter ( self \ ) Before the Screen loads, read the configuration file to get the current list of notes.
```

Definition at line 74 of file NoteScreen.py.

#### 6.9.3 Member Data Documentation

#### 6.9.3.1 bank

```
NoteScreen.NoteScreen.bank = ListProperty([]) [static]
```

Definition at line 72 of file NoteScreen.py.

#### 6.9.3.2 post test

```
NoteScreen.NoteScreen.post_test = ListProperty([]) [static]
```

Definition at line 71 of file NoteScreen.py.

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#### 6.9.3.3 pre\_test

```
NoteScreen.NoteScreen.pre_test = ListProperty([]) [static]
```

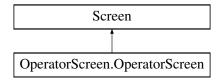
Definition at line 70 of file NoteScreen.py.

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

• src/view/screens/settings/NoteScreen.py

## 6.10 OperatorScreen.OperatorScreen Class Reference

Inheritance diagram for OperatorScreen. OperatorScreen:



#### **Public Member Functions**

- def on\_pre\_enter (self)
- def on\_enter (self)
- def save (self)

#### 6.10.1 Detailed Description

Definition at line 16 of file OperatorScreen.py.

#### 6.10.2 Member Function Documentation

#### 6.10.2.1 on\_enter()

```
def OperatorScreen.OperatorScreen.on_enter (
     self )
```

Once the Screen loads, show a qwerty keyboard and focus the TextInput

Definition at line 23 of file OperatorScreen.py.

#### 6.10.2.2 on\_pre\_enter()

```
def OperatorScreen.OperatorScreen.on_pre_enter ( self \ ) Before the Screen loads, read the configuration file to get the current operator and set the TextInput text.
```

Definition at line 17 of file OperatorScreen.py.

#### 6.10.2.3 save()

```
def OperatorScreen.OperatorScreen.save ( self \ ) Save button was pressed: save the new operator in the configuration file.
```

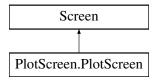
Definition at line 32 of file OperatorScreen.py.

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

src/view/screens/settings/OperatorScreen.py

#### 6.11 PlotScreen.PlotScreen Class Reference

Inheritance diagram for PlotScreen. PlotScreen:



#### **Public Member Functions**

- def on\_pre\_enter (self)
- def on\_enter (self)
- def save (self)

#### 6.11.1 Detailed Description

Definition at line 16 of file PlotScreen.py.

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#### 6.11.2 Member Function Documentation

#### 6.11.2.1 on\_enter()

Once the Screen loads, show a numeric keyboard and focus the TextInput

Definition at line 23 of file PlotScreen.py.

#### 6.11.2.2 on\_pre\_enter()

```
\label{eq:constraint} $\operatorname{def PlotScreen.PlotScreen.on\_pre\_enter} \ ($\operatorname{\it self}$ )
```

Before the Screen loads, read the configuration file to get the current plot number.

Definition at line 17 of file PlotScreen.py.

#### 6.11.2.3 save()

```
def PlotScreen.PlotScreen.save (
     self )
```

Save button was pressed: save the new plot number in the configuration file.

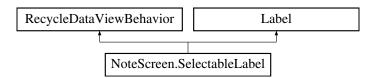
Definition at line 32 of file PlotScreen.py.

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

src/view/screens/settings/PlotScreen.py

#### 6.12 NoteScreen.SelectableLabel Class Reference

Inheritance diagram for NoteScreen.SelectableLabel:



#### **Public Member Functions**

- def refresh\_view\_attrs (self, rv, index, data)
- def on\_touch\_down (self, touch)
- def apply\_selection (self, rv, index, is\_selected)

#### **Static Public Attributes**

```
• index = None
```

- selected = BooleanProperty(False)
- selectable = BooleanProperty(True)

#### 6.12.1 Detailed Description

```
Add selection support to the Label
```

Definition at line 39 of file NoteScreen.py.

#### 6.12.2 Member Function Documentation

#### 6.12.2.1 apply\_selection()

Respond to the selection of items in the view.

Definition at line 58 of file NoteScreen.py.

#### 6.12.2.2 on\_touch\_down()

Definition at line 51 of file NoteScreen.py.

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#### 6.12.2.3 refresh\_view\_attrs()

Definition at line 45 of file NoteScreen.py.

Catch and handle the view changes

#### 6.12.3 Member Data Documentation

#### 6.12.3.1 index

```
NoteScreen.SelectableLabel.index = None [static]
```

Definition at line 41 of file NoteScreen.py.

#### 6.12.3.2 selectable

```
NoteScreen.SelectableLabel.selectable = BooleanProperty(True) [static]
```

Definition at line 43 of file NoteScreen.py.

#### 6.12.3.3 selected

```
NoteScreen.SelectableLabel.selected = BooleanProperty(False) [static]
```

Definition at line 42 of file NoteScreen.py.

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

• src/view/screens/settings/NoteScreen.py

## 6.13 NoteScreen.SelectableRecycleBoxLayout Class Reference

Inheritance diagram for NoteScreen.SelectableRecycleBoxLayout:



#### 6.13.1 Detailed Description

Adds selection and focus behaviour to the view.

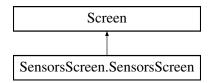
Definition at line 36 of file NoteScreen.py.

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

src/view/screens/settings/NoteScreen.py

#### 6.14 SensorsScreen.SensorsScreen Class Reference

Inheritance diagram for SensorsScreen. SensorsScreen:



#### 6.14.1 Detailed Description

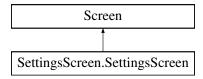
Definition at line 6 of file SensorsScreen.py.

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

• src/view/screens/settings/SensorsScreen.py

## 6.15 SettingsScreen.SettingsScreen Class Reference

Inheritance diagram for SettingsScreen. SettingsScreen:



#### 6.15.1 Detailed Description

Definition at line 11 of file SettingsScreen.py.

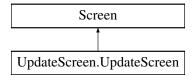
The documentation for this class was generated from the following file:

src/view/screens/SettingsScreen.py

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## 6.16 UpdateScreen.UpdateScreen Class Reference

Inheritance diagram for UpdateScreen. UpdateScreen:



## 6.16.1 Detailed Description

Definition at line 6 of file UpdateScreen.py.

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

• src/view/screens/settings/UpdateScreen.py

## **Chapter 7**

## **File Documentation**

## 7.1 src/configurator.py File Reference

#### **Namespaces**

· configurator

#### **Functions**

- def configurator.load ()
- def configurator.save ()
- def configurator.set (key, value)
- def configurator.get (key, default)

#### **Variables**

- string configurator.CONFIG\_FILE = 'config.json'
- dictionary configurator.data = {}

## 7.2 src/main.py File Reference

#### Classes

- class main.GranuScreenManager
- class main.MainApp

#### **Namespaces**

• main

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## 7.3 src/view/keyboardManager.py File Reference

#### **Namespaces**

keyboardManager

#### **Functions**

• def keyboardManager.showKeyboard (caller, layout)

#### **Variables**

• keyboardManager.keyboard = None

## 7.4 src/view/screens/ExitScreen.py File Reference

#### Classes

· class ExitScreen.ExitScreen

#### **Namespaces**

ExitScreen

## 7.5 src/view/screens/LiveFeedScreen.py File Reference

#### Classes

• class LiveFeedScreen.LiveFeedScreen

#### **Namespaces**

• LiveFeedScreen

## 7.6 src/view/screens/MainScreen.py File Reference

#### Classes

• class MainScreen.MainScreen

#### **Namespaces**

MainScreen

## 7.7 src/view/screens/settings/ColorsScreen.py File Reference

#### **Classes**

· class ColorsScreen.ColorsScreen

#### **Namespaces**

ColorsScreen

## 7.8 src/view/screens/settings/HeightScreen.py File Reference

#### Classes

• class HeightScreen.HeightScreen

#### **Namespaces**

HeightScreen

## 7.9 src/view/screens/settings/NewNoteScreen.py File Reference

#### Classes

• class NewNoteScreen.NewNoteScreen

### **Namespaces**

NewNoteScreen

## 7.10 src/view/screens/settings/NoteScreen.py File Reference

#### Classes

- class NoteScreen.SelectableRecycleBoxLayout
- · class NoteScreen.SelectableLabel
- class NoteScreen.NoteScreen

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#### **Namespaces**

NoteScreen

## 7.11 src/view/screens/settings/OperatorScreen.py File Reference

#### Classes

• class OperatorScreen.OperatorScreen

#### **Namespaces**

OperatorScreen

## 7.12 src/view/screens/settings/PlotScreen.py File Reference

#### Classes

· class PlotScreen.PlotScreen

#### **Namespaces**

PlotScreen

## 7.13 src/view/screens/settings/SensorsScreen.py File Reference

#### **Classes**

• class SensorsScreen.SensorsScreen

#### **Namespaces**

SensorsScreen

## 7.14 src/view/screens/settings/UpdateScreen.py File Reference

#### Classes

• class UpdateScreen.UpdateScreen

## **Namespaces**

UpdateScreen

## 7.15 src/view/screens/SettingsScreen.py File Reference

#### Classes

· class SettingsScreen.SettingsScreen

#### **Namespaces**

SettingsScreen

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