The Veripeditus AR Game Framework
Enabling everyone to freely create Augmented Reality Games

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from veripeditus import framework as f

class AnyChild(f.NPC):
    spawn_osm = {"building": "school"}  
default_image = "schoolkid"

    def on_talk(self):
        return self.say(
            "I can make AR Games :)!")
Today’s talk

Who we are

About Veripeditus

How to create games

Framework development and design

State and future

You and us and Veripeditus
Eike

- Eike Tim Jesinghaus
- 15 year-old student from Germany
- Python programmer since age 11
- Python tutor at Teckids e.V.
Nik

- Dominik George
- 26 years old
- Dayjob: Software developer at tarent solutions GmbH
- Head of Teckids e.V., the FOSS youth organisation in Germany
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What is Veripeditus?

- A free software AR game creation framework
- Allows easy creation of augmented reality games
- Run your own server with different worlds and different games in them
- Play the games using any mobile browser
How it got started

- We were looking for a new fun project
- AR gaming seemed to become popular (cf. that monster catching thingy)
- We wanted to create something like that without the privacy hassle
- Many different ideas - why not make it a framework?
New goals after some time

- The framework got more and more powerful
- Developing games with it got much easier than expected
- So now:
  - Make it as accessible as possible
  - Enable use in various fields besides just-for-fun gaming
  - More about that later!
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Before we discuss more, let’s look at how to make a game!
Basic workflow for making a game

1. Plan any game objects and their features (position, names, images,...
2. Creating a game is easy - plan game objects and their features, the plot and other logic of the game and implement it in pure python class definitions.
3. Draft a game plot, activities, other logic
4. Put everything together in object/class definitions in pure Python
A first tiny game

```python
from veripeditus import framework as f

class Player(f.Player):
    pass

class AnyChild(f.NPC):
    spawn_osm = {"building": "school"}
    default_image = "schoolkid"

def on_talk(self):
    return self.say("I can make AR games :)!")
```
Quiz time: What have we got here?
Quiz time: What have we got here?

Answers:

▶ A Player object with no special behaviour
▶ An NPC (non-player character) named AnyChild
  ▶ Spawning at every building tagged a school on OpenStreetMap
  ▶ Having the image of a schoolkid
  ▶ Saying "I can make AR games :)!" when asked

Isn’t that cool?
First tiny game, in pictures
First tiny game, in pictures
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Framework development and design goals

- Make game creation as easy and accessible as possible
- Still allow adding arbitrarily complex code
  - No DSL - game cartridges are plain and honest Python packages
  - Don’t get in the way while still being helpful
- Provide all basic objects and functions to derive from
  - Player, Items, NPCs, Locations, …
  - Dialogues, item management, inventory management, interaction, …
- Tight and simple integration with OpenStreetMap
Technologies used

- **Backend**
  - Python 3
  - Flask web framework with Flask-Restless, and others
  - SQLAlchemy and OSMAlchemy

- **Frontend**
  - HTML 5, JavaScript, CSS 3
  - JQuery and JQuery-UI
  - Leaflet

- **Simple RESTful HTTP API**
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What’s already there

- Framework features and objects
  - Items and NPCs
  - Spawning at lat/lon or OSM objects
  - Interaction (collecting items and talking to NPCs)
- Backend technology with advanced API
- (Rudimentary) reference web application for gameplay
  - Map view
  - Camera / 3D view
- Advanced debugging/testing mode for easier development
Current uses of Veripeditus

- Teckids e.V. school project at Ganztagsrealschule Odenthal
  - Public school in Germany
  - 20 students between 12 and 15 years
  - Weekly coding lessons
  - Drafting, describing and planning of AR games
  - Actively contributing feature and change requests
Many different use fields

- Gaming, of course...
  - Create just-for-fun outdoor games with AR aspects
- Educational use
  - Coding lessons
    - Basic coding
    - Object-oriented modelling
    - Databases, APIs, and much more
  - Interdisciplinary use
    - Educational games for history, arts, ...
    - Fun at field trips
- Tourism and attractions
  - Interactive stories in open air museums, ...
Spontaneous question: Any quick ideas here?
Coming up / Roadmap

- Improvements to web application
- Interactive / live game code editor
- More detailed and diverse game object interactions
- WebGL 3D models
- Sound support
- HUD defined by games
- 3D interaction with game objects (aiming, etc.)
- ...

Scheduled date for public beta release: 2017-03-11!
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What we can do for you

- Make Veripeditus a framework for YOU to use
- Help you implement game ideas in your use fields
What you can do for us to help us help you

- Report your ideas, feature requests and bugs
- Help us if you are (or want to be) a JavaScript or CSS guru
- Test Veripeditus on many mobile devices
- Tell us stories from active usage in different fields
Where to find us

- **GitHub:**
  https://github.com/Veripeditus/veripeditus-server
  - Please find up-to-date contact and testing information there!
  - Go mad reporting ideas, questions, requests and bugs
- **Twitter:** @VeripeditusTeam
  - Please follow us to receive updates!
- **E-mail:** team@veripeditus.org
Some numbers

- Code size: >2 kloc (>3.5 kloc including comments)
- Commits: exactly 1000 😊!
- Age: First birthday was on 2017-01-19
- Active contributors: 3
- Tasks in issue tracker: 33 open, 48 closed
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FOSDEM game

Go to https://nightly.veripeditus.org with any mobile browser.

- Small testing game on the campus
- Game may be slow and may not work on all devices
  - Camera view only works on Firefox on Android
  - Map view should work on most browsers
- Please ping us via e-mail or find us somewhere if you have bugs to look at
- Find the full code at:
  https://github.com/Veripeditus/game-fosdem17

Start by finding the guy at the entrance of building K and listen carefully 😊!
Thank you!
Time for questions and discussion...

We also want to thank...
Python • Flask • Flask-Restless • SQLAlchemy • jQuery • Leaflet • OpenStreetMap • mirabilos • Debian • and others we forgot to mention!

Invitation:
OSMAAlchemy workshop • Tomorrow, 12:30 • Geospatial Devroom

Proudly made with \LaTeX beamer and without fancy office products • Sources at:
https://github.com/Veripeditus/veripeditus-server/tree/master/doc/presentations