

## SKARABÄUS

Access system with mobile app



### COMPANY

Zernpfennig Informatik  
System Integration & Business Solutions,  
Austria

### INDUSTRY

Zernpfennig Informatik has successfully developed desktop, web, and mobile applications for many years. One of the focal points is in the area of waste management.

### USED TOOLS

-  RAD Studio
-  RAD Server
-  FireMonkey

Download the app:



“ We needed a multiplatform solution for Android, iOS, and Windows for the creation of the Scarabäus app - **with RAD Studio we were able to realize everything with one IDE and one language.** ”

– Ing. Verena Zernpfennig, BSc  
Head of Software Development



### CHALLENGES

The St. Pölten Land municipal association had the requirement to develop a flexible and modern access system for the newly built recycling and waste collection centers. Access also needed to be guaranteed outside regular opening hours and be possible via app as well as via RFID card. The newly developed app was to be a modern and free alternative for the time-consuming administration of the additional access cards. The usability of the app was the top priority.

“ By using **Delphi and RAD Server** as middleware, we were able to create an **extremely fast connection** to external services via REST APIs. ”

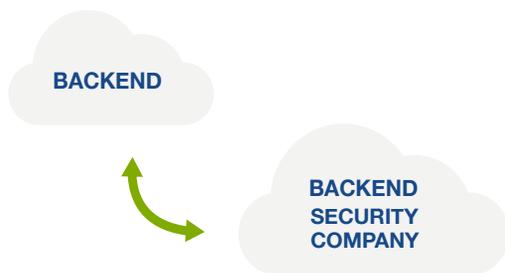
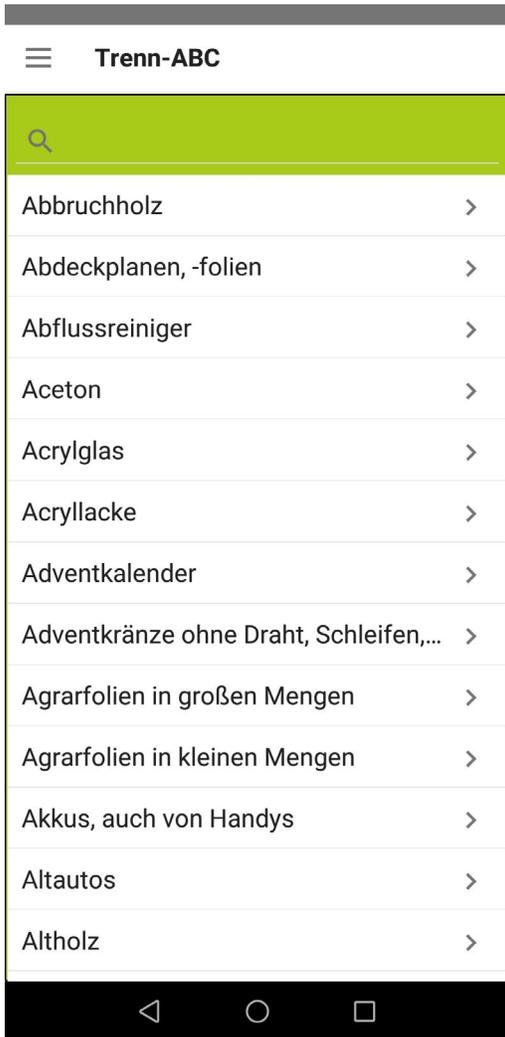
– Ing. Verena Zernpfennig, BSc  
Head of Software Development

The prerequisite was a multiplatform solution that can be downloaded by citizens of the St. Pölten-Land district both in the Android Play Store and the Apple App Store. A big challenge was, on one hand, the direct connection to the back end of the security company, which controls the access system and the barrier control, and on the other hand, the location determination using the app for general access authorization.

### RESULTS

Together with the customer GVV St. Pölten, the software company Zernpfennig Informatik developed the access system “Skarabäus.” The very short development time, which was only four months from the design phase to the rollout, should be emphasized. The team size consisted of five people who shared UI design, development, and connection.

With this app, after successful registration, users immediately receive authorization to access any restricted recycling center in the member municipalities, even outside regular opening hours.



Connection to the back end of the security company with the RAD server middleware via REST APIs

The security company SIPEKO has specialised in electronic locking systems and intelligent systems for access control. Its areas of expertise also include fire protection, alarm systems and video surveillance. SIPEKO has developed its own API for the connection to the barrier system so that the respective barrier can be opened via the mobile device. This API serves both the management (CRUD) of authorized accesses and the communication between the mobile device.

Further information about the security company can be found at:

<https://www.sipeko.at/>

Access can be conveniently controlled from the car via the app. Additional functionalities, such as displaying the correct disposal of the individual types of waste, support the correct separation of waste in the recycling center.

The app can be expanded and adapted to meet increasing requirements at any time.

“ For me, ‘Skarabäus’ is the app for modern electronic access. For me, the advantages over a card are perfect customer information. Starting with the integrated separation ABC to reminders for waste disposal by push message, individual wishes can be realized. Not only with the app, but also with the card, I appreciate the possibility of cashless payment at the collection center and the automatic billing in our accounting software.

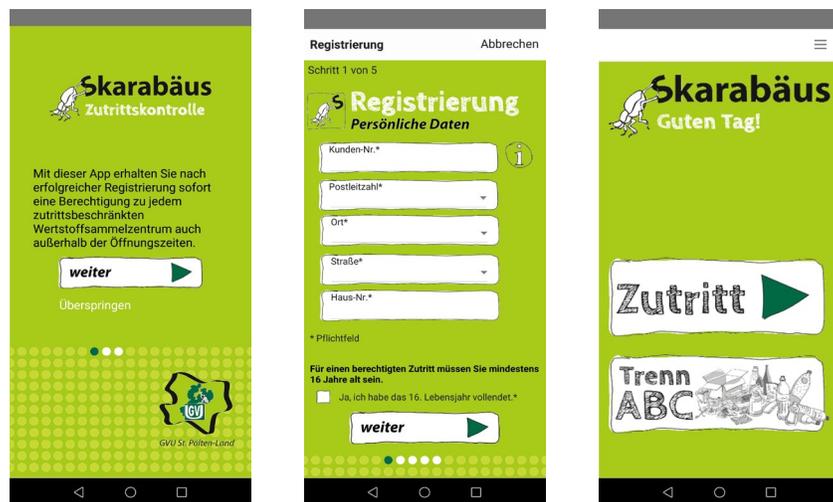
– Markus Punz  
Waste consultant and deputy head of department GVV St. Pölten

One of the main considerations during development was the choice of how to implement location determination and access on site. Initially, BLE and NFC were tested with Bluetooth, but finally GPS was used. This also offered the possibility to offer an automatic calculation for the nearest location.

The communication of the app with the RAD server middleware was guaranteed by REST APIs. The access to the back end of the security company SIPEKO was also newly developed in this way.

The administration of access for the app and card as well as the evaluation are controlled in parallel in a client/server application, also developed by Zernpfennig Informatik under RAD Studio with Delphi.

Since a high level of digital networking was desired, the entire development of the app (Android and iOS) was realized in Delphi 10.3.3 in combination with the RAD server as middleware.



An app enables easy access to every restricted waste collection center. Registration is carried out using the customer number from the waste disposal bill.

## CONCLUSION

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RAD Studio with Delphi and RAD Server have proven to be an ideal combination with a short development time.

Both the user interface for the mobile apps and the back end programming were solved without any technology break by using the same programming language.

Simply a clean solution!

“ In any software project, time and cost are key factors for success or failure - **RAD Studio lives up to its name with ‘Rapid Application Development.’**

– Christian Zernpfennig  
Managing Director

“ The project started in 2018 as an idea for the longer future, but the app had already been implemented and put into operation in 2019. A great step for our customers, who appreciate this offer very much and use it a lot. This is a measure where municipal waste management can inspire customers.

– Johann Freiler, MMSc.  
Head of office **GVU St. Pölten**

“ The RAD server as modern middleware enables a secure and technologically high-quality networking of heterogeneous applications without the use of third-party components—a tool that combines all necessary components.

– Christian Zernpfennig  
Managing Director

For further information about Z-Informatik and the Scarabäus app, please visit:

<https://www.z-informatik.com/zutrittskontrolle/>

<https://www.skarabaeus-gvustp.at/>

<https://stpoeltenland.umweltverbaende.at/>

Demo Videos:



The Youtube video shows the use of the Scarabäus App.



A short demo video of the Scarabäus App: Electronic access to the recycling center.

Download the app:

