BajtaHack 2017

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Intelligent Lighting Systems

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Člani:

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# Vsebinski opis rešitve

[Opišite rešitev z vsebinskega vidka: komu je namenjena, kaj omogoča, kako jo lahko uporabnik koristno uporablja, kakšne probleme rešuje?...]

*Atraktivnejše rešitve bodo dobile več točk.*

*Our solution is valuable to any property and business that could benefit from intelligent remote control and monitoring of lightning systems. The existing prototype architecture supports scaling to entire apartment buildings and skyscrapers with minimal changes required on the front-end (e.g. grouping by floors and rooms).*

*The simple interface can be used on mobile and desktops which enables users to modify lighting either from a central control station, or on the go via phone.*

# Tehnološki opis rešitve

[Opišite rešitev s tehnološkega vidika: kakšne tehnologije uporablja, kakšna je arhitektura celotne rešitve, izpostavite najkompleksnejše sklope...]

*Tehnološko kompleksnejše rešitve bodo bolje točkovane.*

*The solution is designed with extensibility and scalability in mind to allow easy changes to the system as the demands on the systems grow. The front-end is a single page application (although at the moment using no fancy-pants web frameworks), the interface is RESTful, and the back-end is written in Python and Flask with SQLAlchemy and SQLite.*

*It’s built around an idea that manual (in-room) rules override remote commands (but not disable them, though that could be achieved relatively easily too, with a bit of user managment and ACLs. The web dashboard always shows real-time status of all the lights under current control. There are two modes – manual (the usual on/off) and automatic (turning lights on based on lighting conditions, and movements inside the spaces which have accepted our solution).*

*The web interface simply performs periodic checks to the back-end to check on the state of all the lights (keep-alive or websockets would be more optimal but keeping it simple for the purposes of the demo). Interface specification is available here: [https://github.com/Psywerx/BajtaHack/pull/9#issue-276782676](https://github.com/Psywerx/BajtaHack/pull/9" \l "issue-276782676)*

*The back-end saves the state based on POST requests to database, while a second daemon keeps an eye on physical switches and, when a user change is detected, writes the new state into the database, so the change can propagate throught the system from a single source.*

# Inovativnost

[Opišite rešitev s stališča inovacij, ki jih prinaša. Te so lahko na področju tehnologije, procesov, poslovnih modelov itd.]

*Rešitve z višjo stopnjo inovativnosti bodo bolje ocenjene.*

*Because of its architecture and the possibility of extremely fine-grained control on each individual light / room our solution can help building management to ensure that there are as little lights in operation as possible, which helps keep costs down both in terms of electricity and personnel needed to maintain them – less manual labour of inspection, fewer bulb replacements, and no need to check every room to ensure that all the lights are truly turned off, etc. It can also help with scheduling, based on expected workdays, and with gradual dimming it gives anyone working long hours enough time and a very easy user interface to switch to manual mode (or nudge them that they should go home :)). With correct values set for each actual light (e.g. when a single or a very limited selection of bulbs is deployed) it can also act as an easy way for the billing of electricity based on power usage without the need for expensive electricity meters.*

# Poslovni potencial

[Opišite, zakaj menite, da ima vaša rešitev poslovni potencial. Morda zato, ker rešuje neko problematiko bolje od obstoječih rešitev ali je celo prva, ki se z nekim problemom ukvarja. Razmišljajte o poslovnih aspektih, ki so vedno povezani s trgom, konkurenco, potencialnimi kupci,...]

*Rešitve, za katere nas boste znali prepričati, da imajo poslovni potencial, bodo bolje ocenjene.*

*The technical simplicity that offers simple integrations with external systems and services, fine-grain control and traceability, the ability to automate substantial amounts of manual tasks and scale with the customers as the company grows, easy verification of compliance with workplace lighting requirements, ability to more fairly distribute the costs among users, and extremely easy management of the system all provide companies with a service that makes lighting management a* *delight.*

*Per our quick examination most existing solutions are incredibly complex and not particularly user friendly, and/or are extremely expensive.*

*Our system would be based on a subscription service, so it should provide low upfront costs and offer customers an easier way to scale than current models, which require significant investment both upfront, and when needing to expand their capabilities.*

# Implementacija

[Glede na vsebinko in tehnološko predstavitev rešitve označite oziroma navedite, do kakšne mere ste jo uspeli razviti v okviru hackathlona BajtaHack.]

*Rešitve, ki bodo razvite do večje mere, bodo dobile več točk.*

The prototype of our application is fully developed and will be made available to be tested at bajtahack.zidar.me – we support manual on and off mode and automatic mode that switches the light (in our case a LED diode) on and off based on movement and the amount of ambient light in the space.