

2020

Hawai'i Annual Code Challenge (HACC)

Challenge Title	UH Building Security App
Department / Organization	University of Hawaii/Information Technology Services
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The Challenge	
Describe situation to be solved	Some UH buildings require significant access control, such as the IT Center, which includes an Emergency Situation Room and a Data Center. Currently, building security requires physical monitoring of visitors, which is resource intensive and not always possible. The goal of this challenge is to explore application designs that can improve security for UH buildings with lower personnel costs.
Preconditions <i>(How does it work now)</i>	<ol style="list-style-type: none">1. Right now we use a shared google spreadsheet. All staff have access to the entire spreadsheet.2. Staff update the spreadsheet to identify who is arriving when and who they are to meet and which conf room they are headed for.3. The reception desk reviews the spreadsheet when a guest arrives to validate their access, let staff know that their guests have arrived, and then issues a guest badge and directs them to the elevators.4. The reception desk notes who has come and gone.5. Upon departure from the building the reception desk collects the issued guest badge, each of which have a unique identifier.6. Note that the guest badge is needed to operate the elevator such that guests can traverse between all floors.7. Upon floor arrival guests can enter the hallway for each floor, but cannot access the office spaces; someone must meet them to let them into the office spaces, which include the conference rooms.
Assumptions/Issues <i>(list any conditions that could impact the solution)</i>	<ol style="list-style-type: none">1. People often come in behind building occupants (like in apartment buildings) as they unlock a door. This puts the occupants in the awkward position of doing some building security, and they have to make a judgement call about whether it's safe to confront a stranger.2. Visitor and employee badges are often not visible.3. A visitor badge does not visibly convey which parts of the building the visitor has been authorized to use.4. Building occupants often don't get introduced to new employees (especially student employees) and they are put in the awkward position

	<p>of treating building occupants as people who have no business being there. This happens especially during lunch hours as more people leave and come back into the building through employee-only side entrances.</p> <ol style="list-style-type: none"> 5. Should student employees be granted full access to all parts of the building as full-time employees do? If not, some of the security procedures for visitors may also apply to student employees (e.g. only allowed to access the floor where they work). 6. If for some reason a building occupant is surprised and a stranger gets in (or witnesses someone letting a stranger in), it would be nice to have an app that you can pull up and see if they are supposed to be a guest, see a picture of them, whether they checked in, where they are supposed to go, who they are supposed to see, etc. Actually, this could also be helpful for identifying building occupants since we've already established that one may not know everyone else in the building. 7. COVID-19 procedures require that staff and guests have registered successful for the day before coming onto campus. It would be beneficial to make badge assignment contingent on registration.
<p>Current Approach <i>(how is situation currently being handled)</i></p>	<ol style="list-style-type: none"> 1. (See “preconditions” above for the current approach). 2. The spreadsheet captures: date, start time, end time, event title, visitor name(s), company/group, Sponsor (To See/Contact), Location (of the meeting), disabled visitors flag, Badge #(s), actual time in, actual time out, Notes/Instructions. 3. The Notes/Instructions section allows sponsors to provide specific instructions to the reception desk, such as: “Call me on my cell when the visitors arrive.”
<p>Users <i>(Who would use the application - employees or constituents or both? How many users would there be?)</i></p>	<ol style="list-style-type: none"> 1. Reception area employees (who would check people in, confirm their identity, etc. 2. Building employees (who might want to verify that a person they don't know is in an appropriate area) 3. Visitors (who would use the app to request access to the building, and potentially use it to orient themselves within the building.) 4. Security personnel (who might use it to audit access logs and to help address security violations)
<p>Business Rules</p>	<ol style="list-style-type: none"> 1. The process is only available during normal business hours, except by special arrangement. 2. A visitor must have an ITS staff member sponsor the visit. 3. The sponsor must update the spreadsheet in order to sponsor the visitor.
<p>Special Requirements</p>	<ol style="list-style-type: none"> 1. The app should be designed with security in mind; it is worse than useless if a malicious user can compromise it. 2. Should be designed with audit logging in mind. Need to search events either by full or partial name, but event or company name or by date/time.

	<ol style="list-style-type: none"> 3. Bonus, graphs that show frequency of visits. 4. Provide current disposition of all known badges. 5. Help detect/prevent tailgating, the act of following some through the building without acquiring appropriate authorization. 6. Help visitors know what portions of the building are appropriate locations for their current visit.
Technical Platforms <i>(in use or desired to be used)</i>	Ultimately, a native app approach would be best, but for prototyping and proof-of-concept design, any platform is fine.
Data set to be used or collected	Data will be collected on visitor access logs (entry/exit), and potentially on visitor locations within the building (if possible).
Data set calculations or reporting needs	
Solution Road Map	
Basic Flow <i>(steps of user action/system response)</i>	<p>Scenario 1: Staff sponsors</p> <ol style="list-style-type: none"> 1. A staff member who plans on sponsoring a visitor to a secured building, such as the ITC, uses the app to create a reservation. 2. Once a reservation exists, the person can show up to the building at the appointed time. 3. The receptionist verifies the person's identity, and the system shows the visitor as "on premises". The receptionist takes a photo of the person at that moment, which is attached to the visit record. 4. The receptionist contacts the sponsor, if instructed, to confirm that the visitor has arrived. Instruction may call for assigning the visitor a badge and sending them to the appropriate floor of the building. 5. (Depending upon the sophistication of the app, or the badge that is given to the visitor, their location within the building is tracked.) 6. By the end time, the visitor must have returned to the desk where the receptionist can log the user as having exited the building. 7. If a visitor has not exited the building by the appropriate time, the system generates a warning. 8. If a visitor has accessed an inappropriate area, the system generates a warning. 9. If an employee sees a person in a suspicious location, they can check the app to see who is authorized in that area, as well as the photos associated with all visitors. If the visitor is in an inappropriate area, the employee can ask the system to generate a warning.
Goal of Solution	<p>Improved security for UH buildings without the requirement to physically accompany visitors everywhere.</p> <p>Improved logging of visitors, as well as the ability for security personnel to more easily become aware of unauthorized access.</p>

Business Value <i>(potential financial or time savings)</i>	Preventing unauthorized access has very high business value.
Success Scenario <i>(how you know a solution is working)</i>	<p>If the current security team at the building feels they have better understanding and control over visitor access.</p> <p>If current employees at the building feel they have the ability to find out if a person they see is authorized to be in a certain area.</p> <p>If visitors to the building feel that the security system is efficient and non-intrusive.</p>
To be completed by the HACC Planning Committee	
Community/Industry Data Available	
Potential Community/Industry Co-Sponsors	