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| Pegasus%20-%20Black%20on%20White | | | | Department of Electrical Engineering & Computer Science, CS Division  College of Engineering & Computer Science  University of Central Florida | | | | | | |
| *Return Form to*: Dr. Mark Heinrich, heinrich@cs.ucf.edu | | | | | | |
| **COP 4934: Computer Science Senior Design** | | | | | | |
| **Proposed Project Description Form\*** | | | | | | | | | | |
| (Sponsors who are willing and able are asked to provide a Team Donation of $1500 or more for supplies and the running of the CS Senior Design Program) | | | | | | | | | | |
| Will support: Yes Cannot support: | | | | | | | | | | |
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| Sponsoring Organization: | | | | | | SightPlan | | | | |
|  | | | | | | | | | | |
| Mailing Address: | | | 3218 E Colonial Dr, Orlando, FL 32803 | | | | | | | |
|  | | | | | | | | | | |
| Project Contact: | | Joseph Westlake | | | | | | Position: | | President |
|  | | | | | | | | | | |
| Contact Phone: | 407 230 3594 | | | | | | Fax: | |  | |
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| Contact E-mail: | Joseph.westlake@sightplan.com | | | | | | | | | |
|  | | | | | | | | | | |
| Project Title *(working)*: | | | | | The Community Meshync | | | | | |

*Please feel free to use as much space as needed for each of the sections below.*

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| **Background of Company/Organization**  (Provide a brief overview of the company/organization and the specific project location here) |
| SightPlan is a location aware unified operations management system built to address resident service and maintenance that streamlines work, facilitates on- and off-site communication, and focuses on results – all while keeping in mind usability for sites and organizations of all sizes.  There are 3 ways to access SightPlan:  SightWalk is all about making property visits faster and more productive. You can simply take a photo to create work orders or resident issues, quickly classify them, and schedule a resolution timeframe. SightWorks makes on-site operations and resident service more productive and efficient, and SightDiligence helps make property inspections faster and more accurate.  Underlying SightPlan are 4 simple concepts: Tasks, Places, People, and Assets.  Tasks are geo-located work orders or resident issues that are scheduled, prioritized, and assigned. They’re only considered complete when user-specified requirements are met. Places are geo-located fences on an area’s sitemap. They correspond to custom labels, like ‘Garage’, ‘Amenity’, or ‘Safety’, and allow tasks created in that Place to be automatically tagged with an associated label. People allow you to build an organization and structure teams for individual or multiple sites. Assets allow you to view detailed information about your site’s infrastructure. |
| **Statement and Scope of the Problem(s)** |
| First responders and volunteer teams, when confronted with the destruction of a community, are given the task to rebuild their community in an organized, parallel manner. However, they are often limited in their communication capabilities; documentation of work needed and completed may never be created, and tasks may go unfinished due to some level of confusion of work management. Worse yet, there may be no definitive source for what an area is supposed to look like after repairs are complete – in other words, repair efforts may need to reuse existing pipelines, networking systems, and other above / below ground constructions.  These teams need a fast, convenient, and above all, a *mobile and connected* way to communicate and track repair work when rebuilding a community. |
| **Overall Project Goal(s)** |
| Users will be able to communicate quickly and efficiently across a community, completing repairs with full documentation and auditability with absolutely NO internet connection required. |
| **Project Objectives** |
| 1. Achieving a functioning mesh-network of mobile devices    1. Discovery of devices    2. Validation of device credentials 2. Achieving a synched database across three or more meshed devices 3. Creating database revision management logic for meshed devices 4. **Advanced Features**    1. Handling geo-location bounding of community work    2. Creating document models of ‘tasks’, ‘people’, ‘places’, and ‘assets’ for a community for a database to manage.    3. Assign work to specific individuals currently **IN the active mesh or that HAVE BEEN in the active mesh**. |
| **Expected Project Deliverables** |
| The project must incorporate, at a minimum, the following deliverables:   1. The system is a mobile-based solution (preferably iOS), capable of running on devices with **WiFi, Bluetooth, Camera, and GPS** capabilities. 2. The system is capable of entering and participating in a **mesh network** for peer-to-peer synching of a database using a form of AdHoc discoverability and connection **without** an active Internet connection. 3. The system should intelligently **monitor and resolve** revisions to its mesh-network database documentation for all users in the mesh.     If time permits, the following capabilities can also be implemented:   1. The system is capable of **geo-locating a community** and bounding work to it. 2. The system can be used to **create, assign, modify, complete, and audit** the repair-trail for a community. |
| **Desired Core Competencies and Experience of Team** |
| Having most / all of the skills below will assist greatly in completing this design project:   1. Object Oriented Design Concepts 2. MVC Modeling for iOS implementation 3. Database modeling and design 4. Networking concepts 5. Usage of user credentials for validation |
| **Other Special Considerations and Project Requirements** |
| * All team members and the professor must sign non-disclosure agreements * *Interdisciplinary project:* Student is preferably an active member of the YES program in their first year. * Work is to be performed together whenever possible off-campus at SightPlan headquarters, and documented in time. * Meetings should be held regularly within the team AND with the sponsor to ensure progress is made and maintained. * SightPlan will remain the owner of all current intellectual property from any and all works used in the design of this project, as well as all new content created for and during its development. * Students accepting this project will be submitted as co-inventors for any patents that contain work and/or content created by those students in the design and implementation of this project. |

*\*IMPORTANT NOTE: Proposed projects may not be chosen by student groups. In any one semester the number of potential industry-sponsored, faculty-proposed, or student-funded projects may exceed the number of student teams. If this project proposal is approved by Dr. Heinrich as a potential CS Senior Design project, you or an appropriate representative will be asked to come to class and give a 15-minute project pitch to the students. Keep in mind this is your chance to convince the students why they should pick your proposed project. Think about what is in it for them, what technologies they will get exposed to, what are the broader, enduring, and social impacts of the work, etc. If your project is chosen, you will be notified typically by the 4th week of the semester. If your project is not chosen, you will be notified in the same timeframe and if it makes sense for your timeline, we would love to offer the same project in the next semester.*