**Bike Theft Alarm**

***Problem Statement****:*

Bike theft has been the number crime reported in most campuses including ours. According to Sacramento state police media log, 98 reported a bike theft for year 2015. The table below shows the number of bike theft crimes reports for months January-December. However, there are still many bike theft crimes that never get reported.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | TOTAL |
| 4 | 9 | 16 | 8 | 19 | 2 | 2 | 7 | 18 | 6 | 5 | 2 | 98 |

***Our project:***

To develop a security and alarm system for bike locks to reduce bike theft.

***Initial ideas:***

* Whenever the lock is broken, there will be an alarm to get the surrounding attention.
* Maybe an email or text to be sent to the bike owner.
* Design either android or IOS app so that the bike owner can locate his/her bike incase forgot where they locked it.
* Maybe if possible, coordinate with the CSUS police department so that they have software that would let them know as soon as the bike lock gets broken. (doesn’t have to be coordinated with police department, it can be just a prototype idea… the way it might work is assuming each lock to have its own serial number and then have a different software or database that contains all serial numbers and updates a warning or something like that whenever a lock gets broken… this also could be for the development part of the project which will be next semester plan)
* ……what else should we have???

***Drawbacks:***

* Heavily on programming!?
* ….what else do you guys think could be a drawback for this project?

**Parking ……..**

***Problem Statement****:*

Unless you’re arriving on campus early morning, it is almost impossible to find a parking spot on the hours between 9 am to 1 pm where everyone is rushing to campus. It might be easier to park at the open parking lots but from my experience, it can take up to 40 min to find a parking spot in any of the parking structures. The reason is because people usually prefer to park at the parking structure but usually no one knows when the parking structure gets full so they keep driving on circles till they find a spot or till someone leaves so that they can take their spot. For a person arriving to campus 10 to 15 mins before class, this is a waste of time and can make you late to class trying to find a spot. However, if someone have a tool that let him/her know that the parking structure is full, it could save a lot of time as that person can look for a parking somewhere else.

***Our project:***

The idea is to design and develop a tool for students coming outside campus. The app will let them know whether the parking structure is full or not so students don’t have to drive in circles to find a spot. The idea is not new and we already seen it in many parking structures off campus. However, it would be beneficial to thousands of students who commute to campus everyday.

***Initial idea:***

* Having sensors at the entrance to count number of cars in and having sensors at the exits to count numbers of cars out and then determines number of spots left at each parking structure and update it to the app.
* Also have a small LED or screen at the entrance that keeps updating the number of spots left at the structure.
* For next semester, we can also make it more complex by making it determining spots left from each floor instead of determining number of spots in the parking structure in general

***Drawback:***

* It will involve a lot paper work if we want to install it on campus and it might not get approved!
* Its not going to be precise about spots left rather it will be more in general.
* If not approved then where are we going to test it??