Project Ideation

Habib University
University Avenue, Off Shahrah-e-Faisal, Gulistan-e-Jauhar
Karachi, Pakistan
TEL: +92 21 11 10 HABIB (42242)
www.habib.edu.pk

Project Title: **STAND ALONE TRACKING SYSTEM**

Project Description: *Please provide a description of the problem to be addressed and the motivation behind the project. Cite references where appropriate and clearly indicate the value addition in your proposed project when compared to existing solutions. If you already have an approach to solving the proposed problem, include it in your response.*

Recently, a friend of mine got robbed at gunpoint. They took his belongings which included his precious car. He did not have insurance or a tracking system in his car hence he could not recover from this monetary and sentimental loss. In order to prevent this from happening again I want to build a system that can track ones belongings and notify the authorized person(s). The system has to be cheaper than existing tracking systems available in the market. It also has to compact and portable such that it can be used in multiple devices. Lastly, it should be open source such that anyone can make it.

Project Motivation: *Please describe your motivation for undertaking this project.*

According to Pakistan 2017 Crime & Safety Report: Karachi, Overseas Security Advisory Council - Bureau of Diplomatic Security U.S. Department of State motorcycle thefts rose by 24% higher than prior years (OSAC, 2016)[1]. The statistics on cars were not available however, if the system is designed to be small enough it can be placed in motorcycles as well thereby increasing the market for such products. Also, a large chunk of the population of Pakistan is considered to lie in the middle class hence, they will benefit most from it as they are more likely to own motorcycles and are more vulnerable to experience theft.

Expected deliverables: *Please list all the expected tangible outcomes at the end of this project, e.g. a working prototype of the solution, a research paper to be presented at a conference etc.*

Expected deliverables for the project includes a working hardware prototype.

Skills needed: *What skills do you believe are needed to successfully complete this project? E.g. hands on experience with FPGAs or Arduino, Experience with programming in C, Formulating new algorithms, PCB designing, Model creation and validation in MATLAB or any other appropriate tool, etc.*

- Hands on experience with microcontrollers (Arduino) and hardware interfacing
- 3D printing software (Siemens solid edge, Autodesk fusion360)
- PCB designing, Soldering, etc.
- Programming using an object oriented programming language such as C++
- Formulating new program flow, etc.

Specific course requirements: *Are there any courses (already offered or to be offered in future) in specific that you believe will help you in successfully completing this project? Limit your response to a maximum of three courses.*

- EE 391 – Engineering Design and Innovation
- ME 362 – Mechatronics
- EE 424 – Data Communication & Networks

Proposed group members: *Provide majors of group members in brackets*

1. Choudhry Bilal Mazhar (EE)

Proposed faculty adviser: Dr. Basit Memon

Comments by faculty adviser: N/A

Co-advisers (if any): N/A