**List of Project Ideas**

**1. Smart Rescue IoT**

**Problem**: During disaster like earthquake, avalanche, etc. the normal mode of communication like calls, internet, etc. goes down and the victims are not able to communicate with the rescue team about their location. People get stuck up under the rubbles of the buildings for many days waiting for the help.

**Solution:** Design Bluetooth mesh network to send the Bluetooth Rescue Beacons. The application will have two parts:

1. Victim mode: Victim can send information like name, latitude, longitude, altitude, victim’s health status, etc. with the help of Bluetooth technologies.

2. Rescue mode: Rescue team can get the details sent by all the victims on the google map and can decide his further plan of action.

We can use commodity hardware like mobile handset to send and receive Bluetooth beacon. By using the concept of “crowdsourcing”, the range of rescue beacons can be up-scaled to infinite in given condition.

All the required rescue teams will be informed the current status of the victims.

Just in case is any some device gets access to internet, the REST APIs can post the data in the web Server deployed on cloud. The web portal will be rendered with the live model state stored in the database on the cloud.

**Technology**: IoT, Cloud, Networking, Java, Web application, Web Services, REST APIs, Android Application, Geolocation APIs, Big Data, Data Mining, Augmented Reality.

**2. Information on the Go -  Augmented Reality**

**Problem**:  To get instant information like restaurants around you with reviews, hospitals nearby or shopping places with discounts just by opening your mobile app and facing the camera towards the area. User can also scan a food and get calorie related details just like that.

**Solution:**  When the user is on the go and wants to get instant information about a nearby restaurant or calorie details of the food he consumes,  he uses the camera to scan the place/food. The App captures the real time location or place, the data is matched the database of information and imposes augmented information on top of that .  Unity 3d Vuforia/Wikitude will be used to develop augmented scenes and data will be imposed on top of that. The information is stored in the cloud for later retrieval to map similar requests.

**Technology:**  iOS/ Android, Unity + Vuforia , Wikitude, Cloud, Maps

**3. Route Ratings**

**Problem** : Road Accidents every year still count for an estimated 1.2 million deaths and 50 million injuries worldwide each year. In our project, we want to come up with a solution to predict how safe it is to choose the route and give them preferred routes, using our mined data.

**Solution**: We have huge data sets available related to road accidents, we want to mine knowledge(patterns/rules) out of these data sets and use this information in recommending routes to our users. Our web application can be used to analyse routes and rate them according to how safe they are based on many factors, like, time of day, day of week, weather conditions, area, etc. Also, with our mobile app we can alert user if they enter a risky zone.

**Technology**: Data Mining Techniques, Web application, iOS/android + Augmented reality, Apache Spark for streaming real-time data.

**4. Parking as a service**

**Problem Solved**: In busy destinations like San Francisco it is difficult to search for vacant parking spaces. It is tedious for drivers to spot a vacant parking spot and a lot of time is spent in circling areas. It not only leads to environmental degradation but also causes frustration. To avoid this hassle Parking as a Service is proposed which will reduce the burden of drivers who are in search of empty parking spots.

**Solution:** Parking as a service solves this ubiquitous problem by creating a platform (Web application) where owners can rent out their personal parking space at a desired time. Drivers who want to find a parking space nearby can book the desired parking space at a desired time. In this way drivers can reserve a parking space well in advance without wasting much of their time. Drivers can see vacant parking spots within 10 meters range of their current location and select the one which is within their budget.

**Technology:** Cloud Technology, NoSQL Database, Google Maps API, REST API.