Indiana University Southeast – CSCI Department

CS Capstone [I/II] – [Preliminary/Final] [Proposal/Report]

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Sponsor: Dr. Hettiarachchi

Unified Utility Failure Alert Application for Colombo, Sri Lanka

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**Product:** The goal of this project is to create an Android smartphone application that will allow consumers and utility managers to inform each other of any utility failures based on their location.

**Technical Feasibility:** We will use full-stack development to engineer our product by using Android Studio, MariaDB, and Java. Android Studio will be used mostly for the front-end of the application, with Java and MariaDB support in the backend. We will use MVC methodologies to complete the product in an Agile development manner.

**Social Feasibility:** We will be taking advantage of Google Maps to use the location feature for users. The finished product will be published on the Google Play store for users to download. We should be able to scale the application to reach any geographic area in the world, allowing users to take advantage of this application.

**Economic Feasibility:** For consumers and utility users, it will create a quicker response time for utilities to be mitigated and to also prevent usual problems in the future. In turn, this will end up saving money and keep customers happy with their utility service.

**Market Research:** The focus targeted market is the city of Colombo, Sri Lanka, and based on multiple sources, we are aware that Sri Lanka has a relatively underdeveloped infrastructure of utilities. In Sri Lanka, all public utilities are administered by the Public Utilities Commission. There is a lack of resources to alert and inform authorities about any service failures. Currently, consumers use a phone line to contact utility providers where their calls go mostly unanswered.

**Alternative Solution:** Alternative solutions to our software include: contacting utility service providers on service status via phone, contacting other people in the area about their service status, or maintaining the status quo (not implementing a solution).

Alternative technologies that we could utilize would be ASP.NET MVC or Ruby on Rails. ASP.NET could pose problems as we try to deploy the site onto a Linux server. MEAN works very well with Linux. We decided against Ruby on Rails because none of the developers have working experience with Ruby.

Alternative technologies that could be utilized would be Kotlin and C++. Some other backend technologies can also be ASP.NET with .NET CORE. We decided to use Android Studio since we are developing an app for Android users, and we would like to gain experience designing a mobile application that we have not done before.

**Project Risks:** Server failure. Loss of data. If the software malfunctions, we could lose track of reported outages across a region.