

**Feasibility Study on the Issue of Remotely Monitoring a Newborn**

Course: ECCE-336-Intro to Software Engineering

Semester: Fall 2022

Section No.: 1

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Link: <https://github.com/ECCE336-100053463/ECCE-336-Project>

Executive Summary:

We are in a day and age where most parents have to work to pay their bills. Thus, they are away from their kids for the most part of their days. So, this is especially a problem for newborns. Where parents have to ask someone to look after their babies as soon as the mother’s maternity leave is over. Whether that be a nanny or a family member. But even then, parents are not at ease thinking about their baby for most of their days, getting easily distracted at work. So, we are proposing to have a surveillance system connected to a mobile application that allows parents to easily check on their child’s room anytime anywhere. All will be connected to a private server to maintain the privacy. The most suitable option for a private and secure server is to rent a Virtual Private Server. This surveillance system could be further improved and enhanced immensely by implementing computer vision and image processing techniques. But, due to the urgency of the project it would be hard to fit within the time constraints.

This project will be split into three main phases. Furthermore, the entirety of the project will be managed on Github. The first phase will be the requirements documentation. Where we will present our well-defined solution and requirements to the clients. This documentation will mostly consist of clear, straightforward, and easily understood tables and diagrams. The second of which will start after getting the clients’ approval. Where we will expand on the simpler diagrams from the prior phase using a tool that eases the process of creating diagrams named PlantUML. All our team’s work and prototyping will be conducted on Visual Studio Code. Lastly, phase three. In this phase will bring everything together and translate it into a functioning prototype programmed in Python programming language.

Client:

The clients of this project are Mouza and Ahmed the couple who wants a system that helps monitor their child while they are at work.

Scope:

The systems goal is to setup an application in which the parents Mouza and Ahmed are able to view their child Mohammad wherever they may be, we will first create a streaming live feed function in which the parents are able to link their smart devices to our application and proceed to view their household whenever they want. Secondly, we will make sure to have a functionality in which multiple devices are able to view the same live feed at once so that anyone can access the application at the same time so that we don’t have a waiting time for any user. Finally, we will have a function that picks up voices from the surrounding cameras in which it notifies the parents phone if something happened by giving them a notification to their devices based on sounds such as baby crying.

Costs and Benefits:

The development of the software will cost 15000 AED at least. The customer will have many benefits using the system.

For example:

* + Providing a live feed access.
  + Notifications about surrounding.
  + Private video feed for security.
  + Multiple access to feed.

Technical:

To complete this project, we will require a programmable camera, a personal computer for each member to handle all the coding and prototyping. That is mostly all that will be required hardware wise. On the other end of the spectrum some special apps, websites and tools will be of be crucial to managing everything. To start we will use Github as our project manager. All our planning will be conducted on it. Visual Studio Code is the application where we will do our coding and prototyping. What sets it apart is its extensive library of extensions and tools of which we will be using many. The most important one is PlantUML, a tool to simply and easily create advanced diagrams using simple lines of code. Lastly, we will have to rent a virtual private server to have our camera and app connected to the web all of the time. With all these tools available at hand what we have in scope for the project would be achievable.

Resources:

We are expecting to complete the movie system project within a period of six weeks. It will be done by a group of 1-3 members, and each member will have an experience in application design implementation and programming since it is going to need an application to run.

The programming language that we want to use is python as it is the language that most of the members are experienced at.

Furthermore, the project should represent all the requirements that the client needs, and it must be done as requested.

Alternatives:

The issue of remotely monitoring babies can have a long list of solutions. Not all of them must implement a surveillance system. It can be solved with a fraction of a cost using a simple sound-based device that sends warning when the sound is higher than 100 decibels which means that the baby is crying so the parents can check on him. Another solution could be making a smart bracelet that could check and monitor all aspects of a child’s wellbeing. But that could prove costly and timely. So change the approach of solving this problem ever so slightly can have the biggest influence on the entire cost of the project.