

# F-KIDDY

## Mobile Application Project

Ozlem CINAR

Department of Computer Science  
Binghamton University  
Binghamton, NY  
ocinar1@binghamton.edu

Elif Berfin BASAN

Department of Computer Science  
Binghamton University  
Binghamton, NY  
ebasan1@binghamton.edu

### ABSTRACT

The project aims to help parents with children. Parents will be able to find their children's location if they lost their children by using this application. Children can get lost because of several reasons. The application aims to create an early detection of the children's last location and inform parents. Lost children are %34 of the total lost people in US. The project aims to decrease the percentage of lost children and create safer environments for children. An IOS application is proposed as the solution to this problem.

### KEYWORDS

Smartphone, IOT , face recognition, children

## 1 Introduction

With the increase of the human population on earth, number of problems raised too. Some of those problems directly effects our lives. There are variety of places where people gather together and create a crowd. In this crowd, even people at a certain age find their ways back, it may be challenging for parents to keep track of their children who are energetic and easy to disappear because of their sizes. Also, children can distract easily, and they can forget to tell their parents that they are going somewhere. And they can disappear in a short amount of time especially in crowded places. This creates a disadvantage for them because children notice that they are lost after they lost their attention to the distraction which made them walk away from their parents at the first place. Another disadvantage in crowded places is it creates the perfect environment for kidnappers. Kidnappers use the crowded to their own advantage. We created an IOS application to solve this problem. Our application serves as an eye which can look after and keep track of where children are with face recognition system and notify parents with location information of their child. The application protects children and their family and spares parents the stress and despair in case of their children got lost.

## 2 System Design and Implementation

We created an IOS application for this project. User first needs to log in if they have an account and create a new account if they are not already signed up. We used MySQL as the database and

MAMP as the web service. First, user logs into the account and create a new one if they are not already in the system. After logging in, user upload a picture of their children to the system if there are not already an image of the child. Parents can upload as many children as they want. It is important to have the most recent photo of the child since they grow up fast and they may change even in three months. The user should inform the system in order to start the search. Once user says they want to search for their child, the program starts searching for faces from live cameras at the region and with face recognition, when the child's image matches with a face from the camera, parents get notified. We plan to use security cameras in the region to get instant and live camera information. Parents will be notified with their children's location information which will be provided by camera's, which recorded the child, location information. Parents will have information about where their child has been and they can look for the child in the region specified from the application. The application has following pages: log in page, sign up page, saved children page and add child page.

### 2.1 MySQL Database

We used MySQL database to store information and MAMP web server to create communication between the application and the database. We use php to create the communication and perform instructions commanded by the application. In IOS application, we use Alamofire library to handle instructions and make calls to the php codes. Once user wants to sign up, new parent is created in the parents database with unique user name. We call the file create\_parent [Figure 1] which includes the php code for adding parent to our database. There are three other databases: children, camera and photo directory databases. Once parent logs in, they see the page with children list. They can add a new child in this page and when they create a new child there, the child's information will be added to children database. It will associate with the parent's information. Then, they need to add a photograph of the child. When user adds the photograph of the child, it is stored in the server computer and its directory is stored in the photograph database. The camera database is needed because we need to know where the camera is in order to tell parents where their child is seen. We keep camera's location information in the camera database associated with its id. Camera database will be constructed by system administrators.



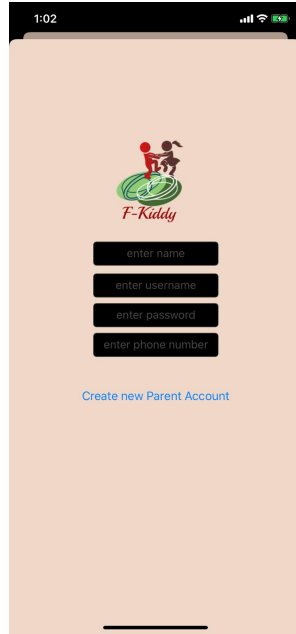
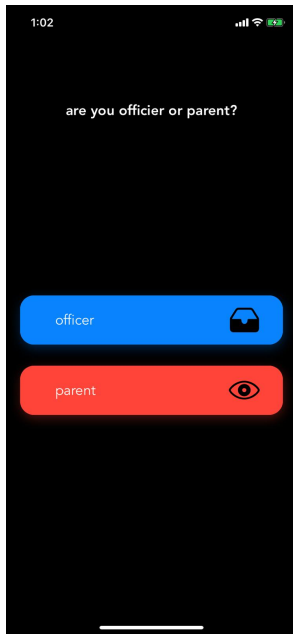


Figure 4: cameraViewController.swift  
 Figure 5: newParentViewController.swift

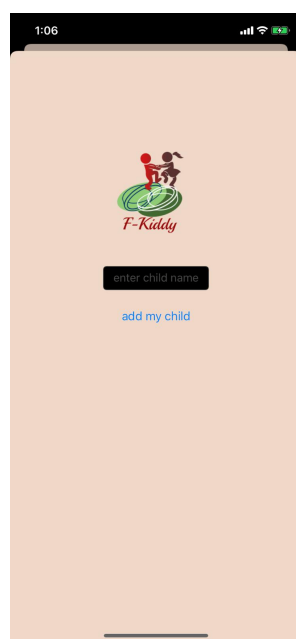


Figure 6: showChildViewController.swift  
 Figure 7: newChildViewController.swift

### 3 Used Software

We used Swift language for the IOS application. For database, we used MySQL and for database connection with the application we used MAMP web service. We coded the instructions which will

be performed according to user's commands in php and used Visual Studio Code as the IDE. And for transferring those commands from the application, we used Alamofire library. Face recognition part is implemented in Swift language and XCode is used as the IDE. We used AVKit, Vision, VideoToolbox, MessageUI for the face recognition. The IOS application is coded in Swift language in XCode.

### 4 Evaluation

Our application serves to the aim of preventing child lose. It can be used in several places like supermarkets, concert halls. Since the system needs to reach security cameras, there is a need for permission to use those camera recordings. We think the system can be used by police departments since they can get permissions easier and they already have access to some security cameras. And this system can be helpful in the search of missing children. Also, supermarket chains or Disneylands all over the world can use this technology for their benefit because those places hosts many children.

### 5 Conclusion

We built an IOS application to prevent children getting lost especially in crowded places. We created the system which can find the location of a child when necessary information is provided by parents. We reached our goal by using face recognition in our system.

When there are numerous of places where people can create a crowd, it is inevitable that sometimes children may lost. Not only in crowded places but also, little children tend to leave their parents when something catches their attention without their parents' knowledge and they can get lost. We believe our application will prevent those issues.

### ACKNOWLEDGMENTS

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### REFERENCES

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