EURASIAN JOURNAL OF AGRICULTURAL RESEARCH

Developing An Android-based Mobile Application for Temporary Animal Shelter Activities

Rumeysa ŞENER[1], Tarık TÜRK[1*]

[1]Sivas Cumhuriyet University, Engineering Faculty, Department of Geomatics Engineering, Sivas/ Turkey

*Corresponding Author: tarikturk@gmail.com

Abstract

With the rapid development of technology, studies on mobile devices have increased. By combining smart systems with mobile devices, mobile devices have gained simple computer functionality and have begun to simplify human life.

In this study, an Android-based mobile application has been developed in order to carry out activities related to the animals in the temporary animal shelter more effectively and easily. The system consists of two main components: web server and mobile application. The location of the animal shelter, information on the animal shelter, and data on employees and registered animals can enter this system. Data management has been performed independently from the application via web server. Records created on the website are reflected in the mobile application. The mobile application part has been developed with the Java programming language that can be used in the Android operating system for the use of local animal protection volunteers and community members. The application is based on location including the selection of provinces, districts, animal shelters. Thus, necessary activities related to temporary animal shelters can be carried out more effectively and easily.

Keywords: Android, Mobile application, Animal shelter

Research article

Accepted: 2 September 2019

INTRODUCTION

According to 5199 numbered Animal Protection Law in Turkey and the application regulations; temporary animal shelters should be established for the protection and welfare and rehabilitation of stray animals. The task of establishing animal shelters is given to local administration. Tasks such as vaccination, adoption, registration, monitoring and supervision policies were determined for these instituons (Anonymous, 2019a). The strengthening of social approaches to animal shelters is of great importance in terms of ensuring the successful functioning of animal shelters with the policies determined (Anonymous, 2018).

Today, technological developments in smart devices, the use of smart phones has become widespread. It has become necessary to present various information systems by sectors as mobile applications. Thanks to the software and hardware used with information systems, it is much easier for enterprises and institutions to fulfill the expected goals. With regard to the legal aspect, the storage of animal records for animal shelters makes it mandatory to perform with information systems and technologies their application responsibility in the policies determined for local governments.

In many countries of the world, training programs are organized at local level to control the population of animals (Anonymous, 2018). At the point of combating street animals, animals are placed in animal shelters and application policies for animal shelters are determined. The basic condition of getting on the way to protect the street animals is success in the implementation of the policies. Applied by local governments; The success of the registration of animals, adoption studies, monitoring and monitoring policies depends on local governments working in coordination with local animal protection volunteers and animal shelters. At the same time, this approach will enable the social approaches to be strengthened and will be able to form the infrastructure of the legal ground. For this reason; The development of an information system providing information on the registration of animals, animal shelters and details is of great importance for the implementation of the application policies in the responsibility of local administrations for animal shelters. The adoption rates of animal shelters may be increased by giving the local administrations the opportunity to create their own billboards for animals that are eligible for adoption. The system served by local administrations should also be served community members. This system can answer the questions such as the location of the nearest animal shelters, responding for help call of people, seeing the billboards for adoption and informing about activities of animals shelter. When the studies in this area are examined, there are some applications such as VETNET (Anonymous, 2019b) and HAYBIS (Anonymous, 2019c).

In this study, an Android-based mobile application for temporary animal shelter activities titled as "ShelterInfo" was developed. This application has been developed not only for local governments and local animal protection volunteers, but also for community members who want to have information about temporary animal shelters, who want to go to the nearest animal shelter and want to adoption from animal shelters.

MATERIALS AND METHOD

In the study, using the Linux kernel; The open source android operating system developed for smart devices by Google, Open Handset Alliance and free software communities has been used (Akalın, 2016). The data used were artificially produced coherently.

The Information, Adoption, Employees, Neutering Statistics menus are activated by selecting the animal shelters. The Adoption menu contains bulletin boards for eligible animals. Two methods have been identified to determine the location of the animal shelter. One is to have the user select the animal shelter details manually and the other is to use the location information to find the nearest animal shelter. According to the selection, the user can get directions to the animal shelter with the location permission. In the application, Android 6.0 Marshmallow version and API 27 level were used. It works successfully on Android 6.0 and above.

Representation of data in the application is provided by connecting the server with Android application side. Web site is prepared without direct connection to the server via the application and access to the database on the server with web service is provided. The Hypertext Preprocessor (PHP) file is linked to the MySQL database on the server. The connection between Anroid Application and server is provided by Java Script Object Notation (JSON) and the PHP page is converted to JSON format. Data from the web service were taken as json and the parse process was applied on the mobile application.

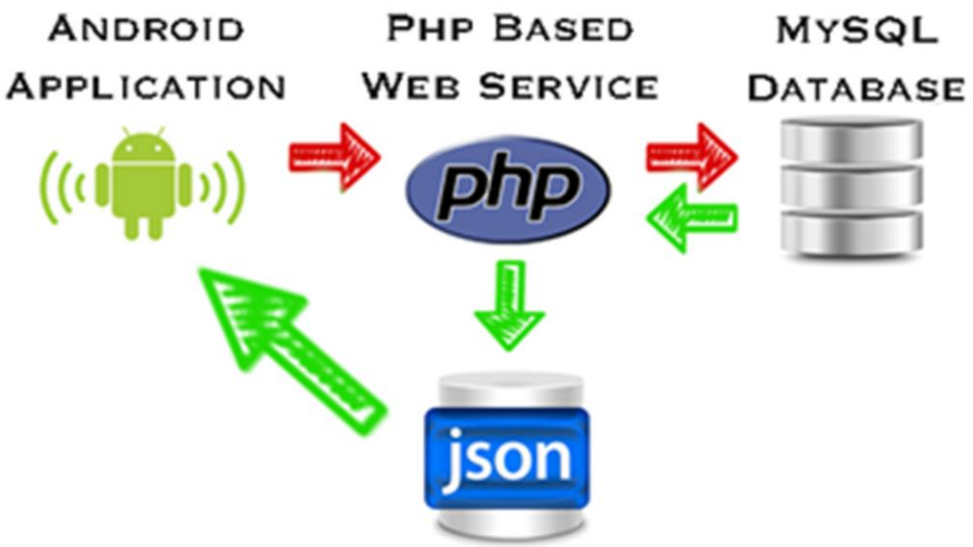

Figure 1. System architecture (Kaytaran et al., 2015)

The user side of the system works on two basic screens. In the system, there are two actors as mobile application and website user. Use case diagram of the system is shown in Fig. 2. The database is kept on a separate web server independent of the application. The user is able to access the parsed ready data from the application.

In this study, the architecture of the mobile application consists of 4 main components:

- Android mobile application developed for the use of community members
- Website for local government database records
- A remote server to manage and communicate the mobile application with the website
- A Database Management System (DMS) to store data on the server

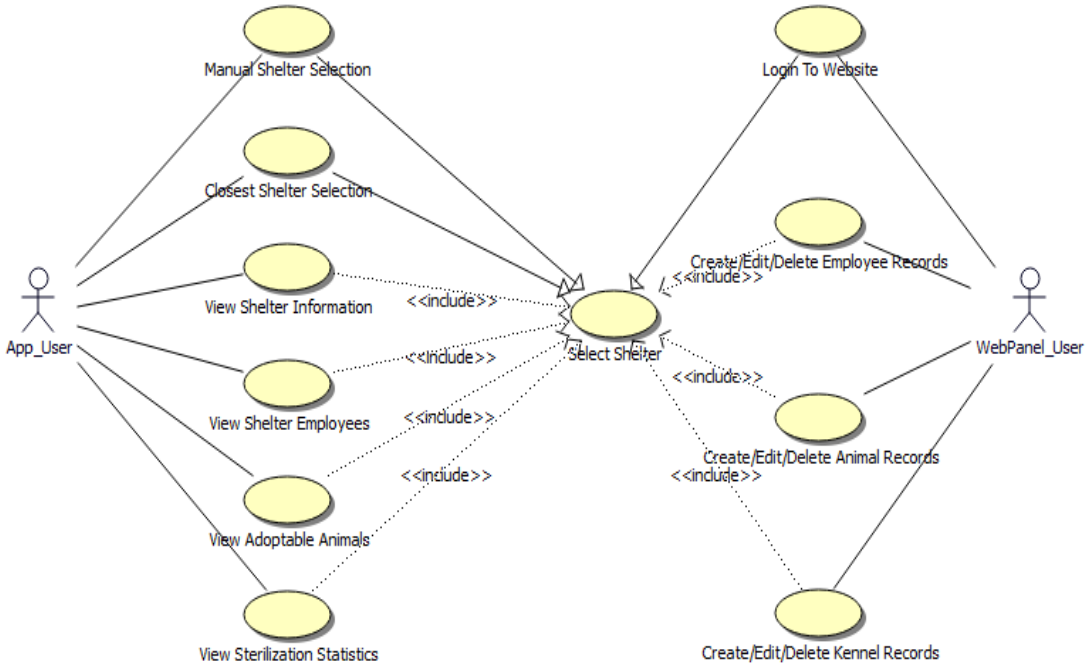

Figure 2.Use Case Diagram

Class structure developed in Android Studio editor of the system and methods are given in Fig 3. Adoption, Employees, Information etc on Navigation Drawer are coded as fragments run in MainActivity class.

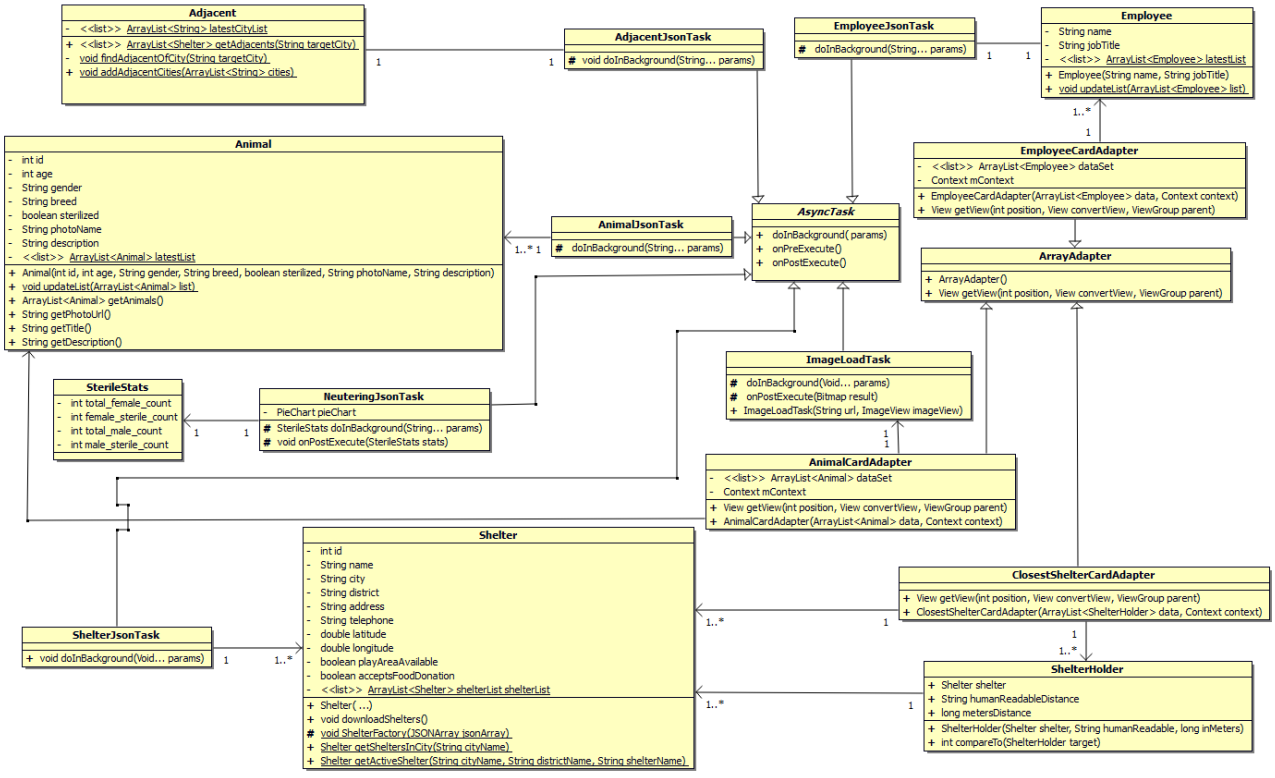

Figure 3. UML Class Diagram

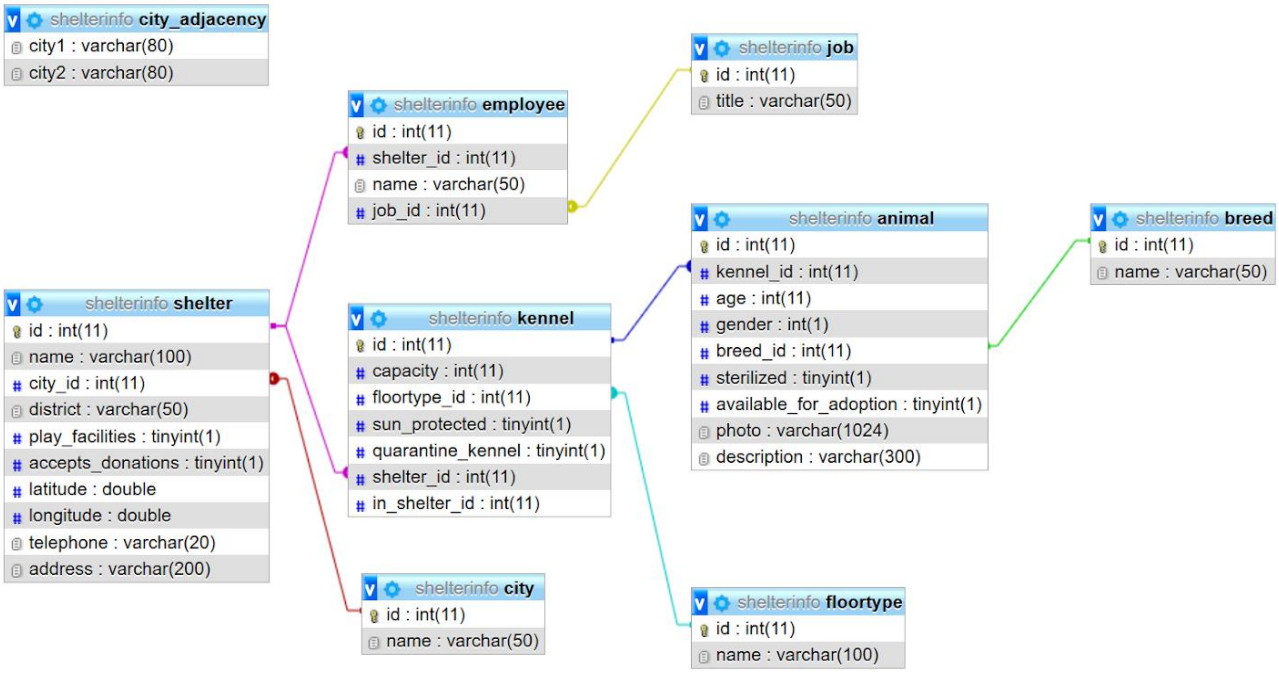

Figure 4. Entity Relationship Diagram

Entities created for animal shelters activities in the database on the server and the attributes of each entities are shown in Fig. 4. Information about the animal shelters, employees and jobs, floor type, sections/cages, animals and cities are stored in the database on the server.

RESULTS AND DISCUSSION

The system user side consists of two parts as specified.

- Website section to enter the animal shelter information for local administrations
- Android application section developed for the use of community members

Website

A website has been prepared for self-registrations of the animal shelters under the responsibility of local administrations. Mobile application has been updated according to website records. Every animal shelter can create their own databases through the website. In addition, all local administrations are able to provide users with the promotion billboards thanks to the mobile application. Animal shelter is primarily selected on the website screen. The registrations for the Home, Animals, Employees, Kennels menus are entered according to this selection. Read, Edit and Delete selections are included in the table for each record. Animal shelter workers can create records of employees, animals, cages/departments and prepare billboards on this website. Cage, strain, age, gender, description, photo, sterilization information can be recorded by entering the information in the table. In the Animal Details section, the information is transferred to the Adoption section in the mobile application for ownership if appropriate for the animal adoption (Fig. 5 and Fig. 6).

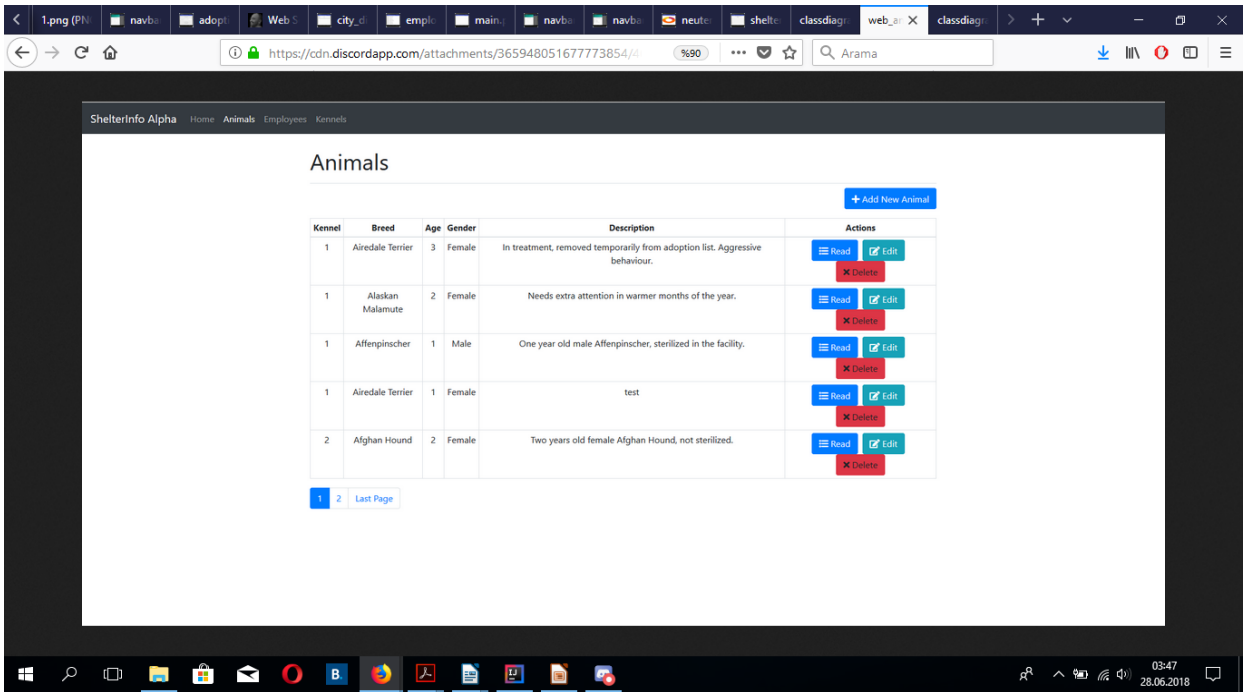

Figure 5. Webpage management panel

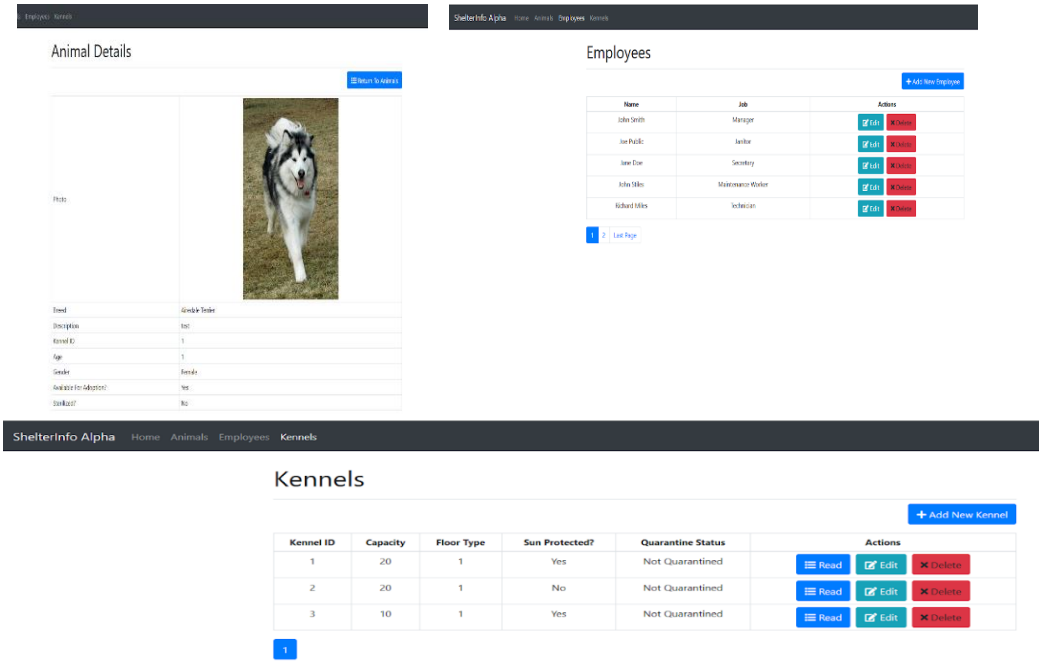

Figure 6. Menus on the website

Android Application

The application includes the following six basic headings (Fig. 6).

- City / District Selection
- Closest Animal Shelter
- Adoption

- Information
- Employees
- Neutering Statistics

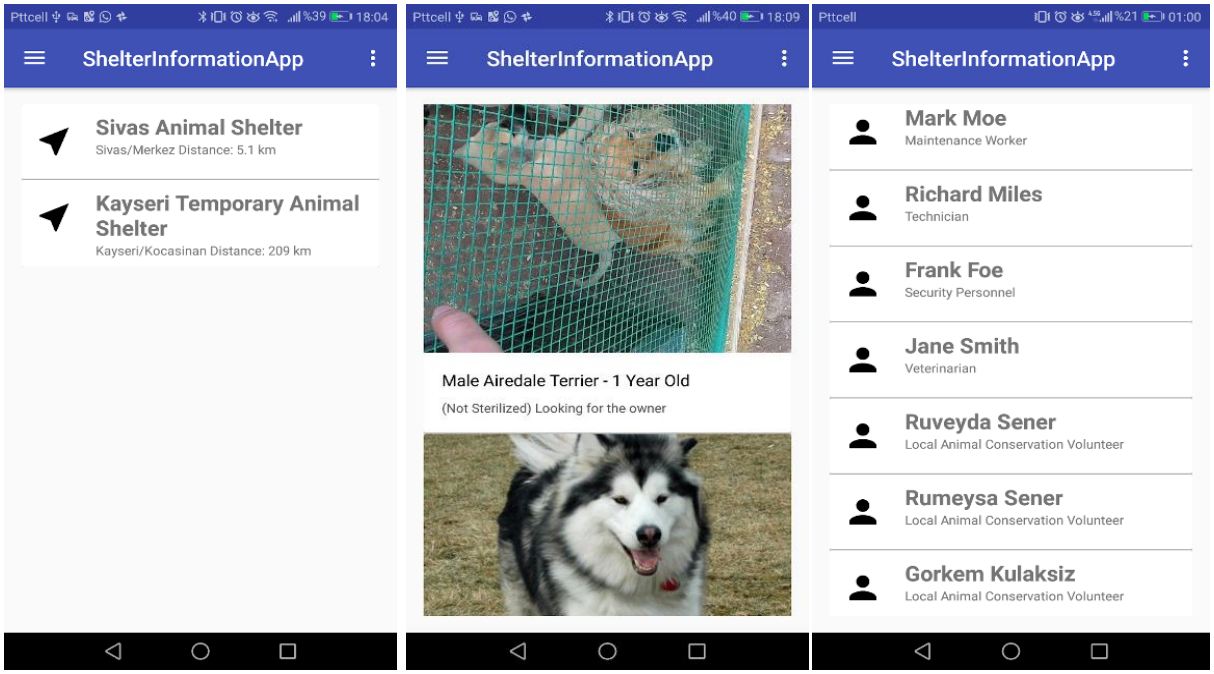

Figure 6. Functions on the mobile application

CONCLUSIONS

In this study, three basic structures were created as Web Server, JSON Parse and Android Mobile Application. The developed system was developed as a fully functional prototype android mobile application. The system works with all the functionality in Android 6.0 MarshMallow and above version. The application can be modified according to requirements for animal shelters. The application can be customized with user name and password. With the authorization of the local administration for the website, access to the records of the animal shelter units can be customized by entering the user name and password in the same way.

People who want to have an animal or get information about it always want to find answers easily from the internet environment. The fact that animal lovers can see the adopt billboard without going to a animal shelter helps them. Access via smartphones to the internet is one of their first choices. It makes their daily life easier for users to see the animal shelter, get routes, and find the nearest animal shelter in their call for help.

With the use of the application developed within the scope of this study, animal shelters application policies can be strengthened. Social approaches constitute the infrastructure of laws. The Law on Animal Protection will remain inadequate unless social approaches are strengthened. Topics such as perspective the stray animals in society and perpetration againist to animals should be revised. It should be aimed to prevent animal purchases by strengthening social approaches. Local administrations should adopt policy the adoption instead of purchasing for animals. Afterwards, monitoring and controlling should become one of the application policies of local governments.

ACKNOWLEDGMENT

The authors would like to thank Görkem KULAKSIZ for his contributions to our study.

REFERENCES

Akalın U. 2016. *Mobil Cihazlarda Adli Bilişim Çalişmalarına Yönelik Bir Model Önerisi.* Yüksek Lisans Tezi, Gazi Üniversitesi, Ankara.

Anonymous. 2018. *Animal sheltering in the United States: Yesterday, today, and tomorrow.* http://veterinarymedicine.dvm360.com/animal-sheltering-united-states-yesterday-today-and-tomorrow (accessed 15 October 2018)

Anonymous. 2019a. *01.07.2004 tarihli 25509 Sayılı Resmi Gazete'de yayınlanan 5199 Sayılı Hayvanları Koruma Kanunu.* http://www.mevzuat.gov.tr/MevzuatMetin/1.5.5199-20100611.pdf (accessed 15 January 2019)

Anonymous. 2019b. *İstanbul Büyükşehir Belediyesi Veteriner Hizmetleri Müdürlüğü*. https://vetnet.ibb.gov.tr/ (accessed 20 January 2019)

Anonymous. 2019c. *T.C. Tarım ve Orman Bakanlığı Doğa Koruma ve Milli Parklar Genel Müdürlüğü.* http://www.milliparklar.gov.tr/haybis (accessed 20 January 2019)

Kaytaran T., Ortakcı Y. ve Karaş I.R. 2015. *Öğrenci Servisi Takip Sistemi Android Uygulaması,* 8. Muhendislik Teknoloji Sempozyumu, Cankaya Üniversitesi, Ankara, pp. 405-408.