

# Smart Shoebox

## (Shoes care solution utilizing IoT concept)

Ko Byunghee, Kwon Gyuhyeok, Kim Junghyun, Shin Minki  
Information System Department  
College of Engineering  
Hanyang University  
Seoul, South Korea

**Abstract**—This document is about the realization of automatic remote control for shoesthrough IoT. We will make smart shoes cabinet that provides this kind of features with other different kind of functions.

### I. INTRODUCTION

Many people experience difficulty managing their own shoes in a decent and pleasant form. Especially for the people living alone, keeping shoes clean and sweet smelling becomes a tough task to manage. When it rains, shoes get wet and dirty. Can you imagine the smell and feel of the shoe? Even worse the smell starts from the entrance to the place where you will go to sleep. This is when the actual management features are required.

What if someone or something could take care of my shoes periodically and automatically. If the shoes could be managed regularly with the aspects of humidity, temperature, and sterilization, it will save money and also provide a pleasant day with a cozy footwear. To realize the concepts of taking care of our shoes, we will develop a shoebox which manages shoes condition by controlling humidity and temperature automatically and periodically.

We are going to use Arduino to support with humidity and temperature recognition by receiving inputs through switches or sensors. Internet of Things (IoT) is also on the base of the idea. The ability to control things (especially shoes in this case) through internet is the main concept we are trying to realize. We are looking forward to create an integrated service tool such as situation awareness, automatic computing, self-growing.

### II. REQUIREMENT

#### A. Optimizing environment function

When we wear shoes, they easily become in a state of high temperature and humidity which causes the disgusting smell, which is also the best environment for bacteria to grow. As a result, there is a need to control the condition of the cabinet keeping the shoes. To provide an optimized environment automatically and also on user's demand is the goal. (There is a need for defining optimized temperature and humidity)

1) *Temperature/Humidity control through electric fan (automatic)*: The sensor receives temperature and humidity as inputs and provides an optimized environment as an output.

2) *Temperature/Humidity control through ultraviolet lamp (automatic)*: The sensor receives temperature and humidity as inputs and provides an optimized temperature and humidity as output.

3) *Drying feature (on demand)*: In case the user's shoes get wet by rain or other liquids the user can request for drying will operate (1), (2).

4) *Sterilization function (on demand)*: In case the user feels the need for sterilization, user can request for this function, which operates (1), (2). This function (4) differs from (3) in degrees of intensity.

5) *Deodorization function (on demand)*: In case the user feels the need for deodorization, user can request for this function, which triggers a deodorant to shoot out.

6) *Deodorization function (automatic)*: The user can set regular intervals to trigger the deodorant to shoot out.

7) *Intensity control feature*: The user can choose the intensity level of (1), (2). Intensity is calculated as number between 1 to 5.

#### B. Management function

Different type of shoes requires different type of proper cares. The shoe rack needs to understand and recognize the shoes type and provide a proper management for the shoes. (Modeling : changing ambiguous information into actual concept.)

1) *Shoe categorization function (bar-code scanning)*: Shoe categorization through capturing the barcode for the shoes.

2) *Shoe categorization function (user input based)*: Shoe categorization through selected category of the user.

3) *Shoe categorization function (captured image)*: Shoe categorization through captured images of the shoes.

4) *Shoe categorization function (3D scanning)*: Shoe categorization through 3D scanning of the shoes.

5) *Setting the proper management tool*: After Shoe categorization, based on the shoes category, the shoe rack provides the proper setting. (There is a need for defining proper setting for each category) The proper setting is different in the aspect of the intensity from Optimization environment function.

### III. CONCLUSION

The conclusion goes here.

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## REFERENCES

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