Turn signal lamp jacket to prevent accident of bicycles

[1] Tarika Saxena

[1, First Author] Professor, Associate Professor, PIMG, India. E-mail: saxena1212@gmail.com

Abstract

These days, citizens have made change of food life to take Western style food and to suffer from diabetes because of excessive nutrition taking, less exercise, stress and other environmental factors. They may suffer from diabetes because of genetic defect, surgery of pancreas, disinfection and medicine and others. One of ten Koreans may have symptom of diabetes to be popular. The diabetes that is a kind of metabolic disease has high blood sugar at disorder of hyper insulinism and/or defect of insulin action. Long time high blood sugar may produce chronic disease of kidney, eyes, nerve, heart and blood vessel and others. The purpose of health care of diabetes patient was to reach target blood sugar by diet, physical exercise and medicine and to prevent and delay complication . Diabetes patient shall control blood sugar to keep healthy. The blood sugar control requires time and effort, and all of the patients are difficult to make effort and to spend time. You can control blood sugar by the application. The application allows patients to control blood sugar and to save time and efforts and to make small sized input and automation of remaining area. The service was limited to blood sugar graph, and user carries smart phone to conduct test and to have difficulty. Further study needs to solve the problems and to investigate blood sugar testing not carrying smart phone and to make application of easy control of blood sugar.

Keywords: Turn signal lamp, jacket, prevent, accident of bicycles.

1. Introduction

The bicycle that everyone can ride regardless of age has been classified to be a car and to create serious traffic accident and to require careful attention to the driving. More than 10,000 cases of bicycle accidents have occurred each year, and more than 300 persons were killed each year at the accident. As many as 62,136 cases of bicycle accident occurred from 2009 to 2013, and number of the death was 1,480 persons (KOTSA). The bicycle accident occurred in the road at Seoul the most from 2009 to 2013: 15,238 cases of bicycle traffic accidents occurred in the road to kill 152 persons. The population who commutes and enjoy leasure by bicycle has increased greatly, and bicycle accident and number of casualty did not decrease to create social problems. In this study, LilyPad Arduino Main Board, FTDI Basic Breakout, conductive fiber, LilyPad White LED, LilyPad Power Supply and Tactile Push Button were used to prevent bicycle accident and to make bicycle turn signal lamp jacket.

2. Associated Studies

Existing bicycle turn signal lamp jacket of adafruit site has inclination lamp on each arm: Raise righthand arm to flicker right turn signal lamp on the back, and raise lefthand arm to flicker left turn signal lamp.

3. Design

LilyPad Arduino Main Board, FTDI Basic Breakout, conductive fiber, LilyPad White LED, LilyPad Power Supply and tactile push button were used to produce bicycle turn signal lamp jacket.

At first, LilyPad Arduino Main Board had large-scaled connection and light weight in accordance with the wearable project. The board back was flat to be easy to adhere clothes and to make use of SMT programming connector and to turn ON by 2V-5V.

FTDI Basic Breakout has FTDI FT232RL USB to Serial IC module to coincide with FTDI cable and to make use of arduino board and other serial application. And, the board has TX, RX and LED to verify serial traffic, and back of the board has jumper to make use of 3.3V and/or 5V I/O level.

The conductive fiber is made of conductive stainless steel fiber to mount electronic product to the garment and to make use for electronic clothes project, and does not include nylon core.

LilyPad White LED is white colored.

LilyPad Power Supply has small size to be powerful and supplies 5V by putting AAA battery to be short circuit protected. Make use of either AAA battery or 1.2V-5V power supply. Tactile Push Button is often used for reset switch of the circuit to have dimension of width of 6mm, length of 6mm, and height of 5mm excluding legs.

4. Implementation

Decided upon places of sewing of the clothes to mark by using chalk. LilyPad Power Supply that is placed far away from LilyPad Arduino Main Board does not turn ON. In this study, sewing is to be done in front of lefthand shoulder. When sewing is completed, adhesive for textiles is to be used and to strengthen connection. Put '+' of LilyPad Power Supply at bottom to connect '+' of LilyPad Arduino Main Board and to connect '-' of LilyPad Power Supply with '-' of LilyPad Arduino Main Board and to sew by using conductive fiber. Sew opening of each part five times to connect well. Put '+' of LED outward to put lefthand turn signal on the lamp and to sew for connection with number 9 of LilyPad Arduino Main Board and to connect No.11 of LilyPad Arduino Main Board by sewing. Then, connect No.10 of LilyPad Arduino Main Board with '-' of left turn signal LED by sewing and then connect No.10 of LilyPad Arduino Main Board with '-' of right turn signal LED.

Run turn signal flickering program to verify sewing. Decide upon place of Tactile Push Button of the sleeve and push leg of Tactile Push Button to bend inside the clothes, and connect No.12 of LilyPad Arduino Main Board with leg of Tactile Push Button of righthand sleeve by sewing and to connect No.6 of LilyPad Arduino Main Board with leg of Tactile Push Button of lefthand sleeve by sewing. Press button of righthand sleeve to flicker right turn signal lamp 15 seconds, and press button of lefthand sleeve to flicker left turn signal lamp 15 seconds, and press both buttons at the same time to flicker both directions turn signal lamp with interval of 1 second. Put into practice by following code:

Check sewing area carefully and remove string left and/or trace completely. Last, load codes of Arduino window by using FTDI Basic Breakout and connect battery to verify connection.

5. Conclusion

Bicycle accident has increased because of increase of bicycle riders. The purpose of the study was to prevent bicycle accident. LilyPad Arduino Main Board, FTDI Basic Breakout, conductive fiber, LilyPad White LED, LilyPad Power Supply and Tactile Push Button were used to press button of righthand sleeve and flicker right turn signal and to press button of lefthand sleeve and flicker left turn signal and to press both buttons and flicker both signals and to produce bicycle turn signal jacket. Bicycle rider takes on turn signal lamp jacket to inform another bicycle rider and/or car driver of his or her direction and to prevent traffic accident and to be likely to get great effect at nighttime when bicycle is invisible. Accelerometer is used to perceive reduction of speed of the bicycle and to flicker red colored warning lamp and to attach and detach signal lamp on the cloth.

References

Arboleda, P. J., & Casallas, M. (2009). A Study on the Customers' Awareness for Modernizing the Facilities of GMF. *Personal and Ubiquitous Computing*, 7(1), 55-70.

Byun, C. G. (2012). A Study on the Influence of Store Selection Attributes on Customer Satisfaction in UML Model. *Change detection in hierarchically structured information*, 28(3), 77-104.

Choi, D. G., & Song, I. K. (2013). The Impacts of Education Service Quality in the Traditional Market Merchant College on UML Model. *Personal and Ubiquitous Computing*,11(10), 81-92.

Choi, Petri, & Choi, Y. (2009). A Review of UML Model Comparison Approaches. *Journal of the Korean society of women's culture*,18, 131-151.

Kosonen, T. A., & Salminen, I. (2011). Dual Data Model for Metadata: Combination of Relational Model and RDF Model. *Change detection in hierarchically structured information*,16(5), 85-101.

Kim, Min-Soo, Jeon, Jin-Ho, & Lim, Jin(2014). Comparing two Implementations of an Approach for Managing Variability. *Personal and Ubiquitous Computing,* 12(2), 17-25.

Lim, Y., & Jeon, S. M. (2010) UML-based Reverse Engineering and Model Analysis. *Journal of Korean Regional Development*, 10(1), 165-189.

Vizhanyo, I., & Agrawal, D. (2009). Metamodel-Based Inference of Inter-Model Correspondence. *Personal and Ubiquitous Computing*, 7(3), 71-100.