Ahsanullah University of Science & Technology

Department of Computer Science & Engineering

Title: Digital Lock

CSE 3216

Microcontroller Based System Design Lab

Submitted By:

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Objective:

‘Digital lock’ is providing smart security protection for bicycles. In this system, when the bicycle user unlocks his bicycle, he will get a message on his mobile phone with a bicycle current location. By the system, bicycle users can keep their bicycle from being theft or harmed by unauthorized persons.

We are making this system for those who have a bicycle and want to keep more secure by using the digital version of the security system.

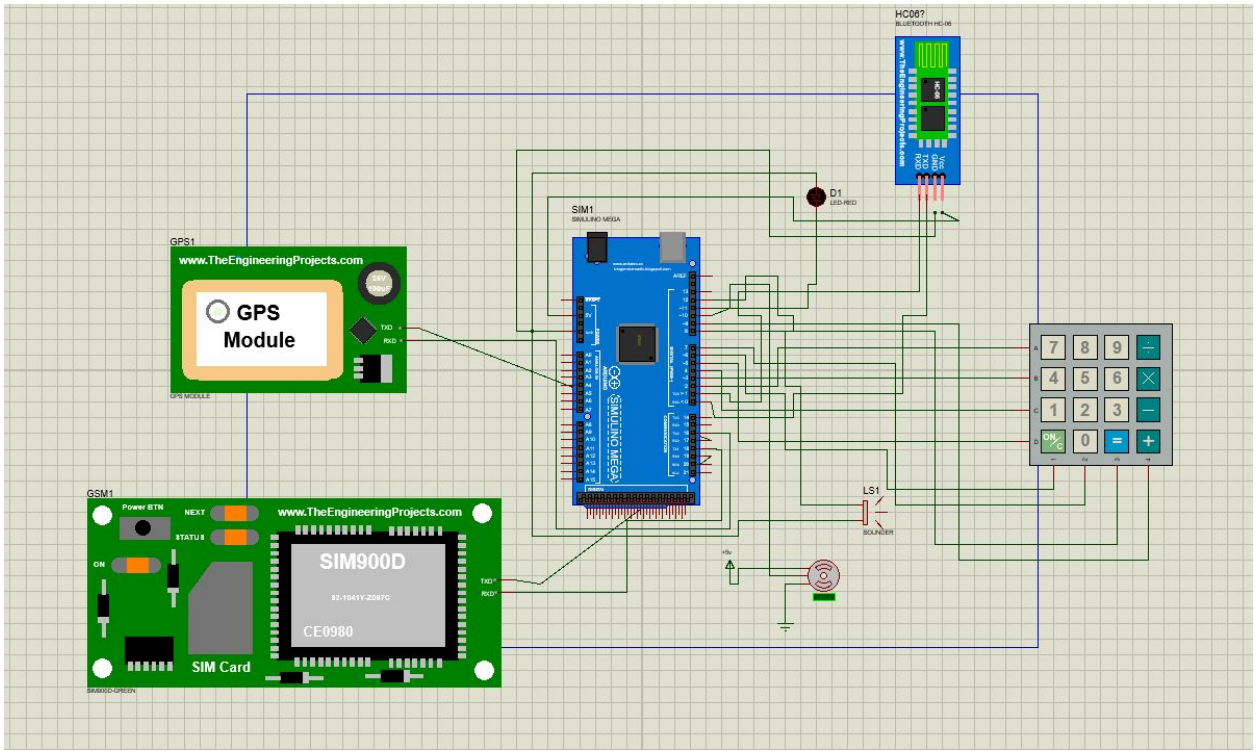
Usefulness in society :

- **Stolen vehicle recovery:** Can be possible to find out the stolen bicycle by using GPS location.
- **Asset tracking:** User can easily track his bicycle.
- **Good economy:** Theft will be reduced from society.

Components:

- Arduino Mega
- GPS Module
- GSM Module
- Wire
- Matrix KeyPad (4X4)
- Servo Motor
- Bluetooth Module
- Buzzer
- Mini Breadboard
- Power Adapter(12 V)
- Buck Converter
- Battery 9v - 2 Units
- Sim card

Design:



Procedure:

This system contains a 4x4 keypad and a bluetooth module for entering the password.

Arduino is used for controlling the whole process with a GPS Receiver and GSM module. GPS Receiver is used for detecting coordinates of the vehicle, the GSM module is used for sending the coordinates to the user by SMS.

If the user types the password correctly by the keypad or bluetooth, the cycle will be unlocked but the user will get an SMS containing the location (as the thief may somehow succeed in typing the correct password).

But if he types the wrong password, the buzzer will turn on and the cycle will remain in the current state.

After three unsuccessful attempts, the system will pause for 5 seconds. After that, the user will get chances to put the right password.

Budget :

Equipment	Quantity	Price (in Taka)
Arduino Mega	1	750
GPS Module	1	870
GSM Module	1	950
Servo Motor	1	320
Bluetooth Module	1	290
Power Adapter(12 V)	1	100
Wires	2 set	80
Matrix KeyPad (4 X 4)	1	75
Mini Breadboard	1	50
Buck Converter	1	70
Battery	2 Units	50
		Total: 3605

Transportation Cost: 290 taka
Total Cost: (3605 + 290) Taka = 3895 taka

Members Contribution:

Name	ID	Contribution (In %)
Arunima Ayshee	160204066	20
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Conclusion:

We hope that our system will keep the bicycle more secure from theft. It will reduce the tension of the bicycle owners.