iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 9 **Issue:** III **Month of publication:** March 2021

DOI: https://doi.org/10.22214/ijraset.2021.33231

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 9 Issue III Mar 2021- Available at www.ijraset.com

Smart Electric Bicycle

Ms. Madhura Kambli[1], Ms. Swati Khatik[2], Ms. Pooja Nigade[3], Ms. Priyanka Gorkha[4], Mr. Rohit Sonawane[5]
[1, 2, 3, 4, 5]*Department Of Computer Engineering, Anantrao Pawar College Of Engineering And Research Parvati, Pune -09, Maharashtra*

Abstract: ***In this project, we are designing normal bicycles into smart electric bicycles. In upcoming years looking towards rises in petrol and diesel as it is a limited resource, electric bicycle is going to be a new sensation in the market. So security- related issues with electric bicycles will be considered. In this project, we are using RFID to lock and unlock the system, using GPS and Bluetooth to locate the place. This will help to solve electric bicycle issues to some extent.***
Keywords: Electric bicycle, GPS, Bluetooth, RFID

I. INTRODUCTION

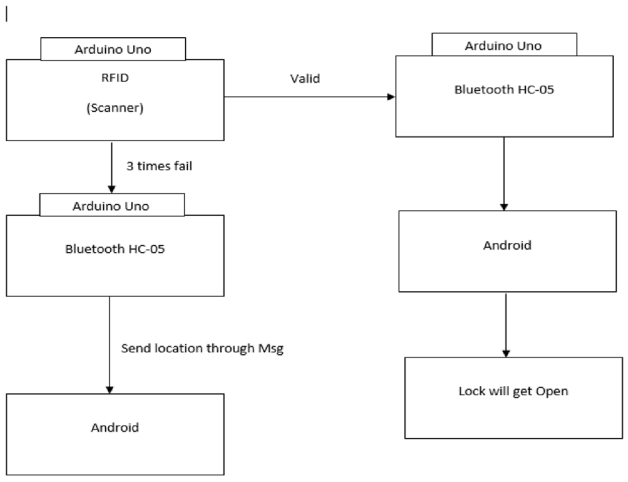
This project is usually designed to protect bikes from being stolen or from unauthorized users. It uses the RFID card security system for the authorized user to start the bike. This makes the bike safer. The RFID course is widely used and used in factories, colleges, schools, etc. This project works with the protection of a bicycle that leads to the development of an anti-theft cycling program. If someone steals a bike then a warning and location message is sent to the bike owner.

II. LITERATURE WORK

A. UT.Sabanayaga m 1, Dr. V. Prasanna Venkatesan2 and Dr. NK. Senthamaraika nnan3, "Complete Research on Various Biometric Systems". It is described as facial recognition technology, fingerprints, iris, retina, voice, and signature etc.

B. UK. A. Mamun, "Anti-theft bicycle protection program". In this study, the Anti Theft Vehicle Security System (ATV2S) was developed and operated using a sensor-network system using Global Positioning System (GPS) and Global System Mobile Communication (GSM) technology to track vehicles.

III. PROPOSED SYSTEM



For a good electric bike, we have used the following types of equipment: -
Arduino Uno, RFID scanner, Bluetooth HC-05, Android app and HID scanner. We connected Arduino with the RFID scanner again Bluetooth. When an RFID card is scanned with an RFID scanner, RFID card input is stored in a temporary value and that value is comparable for a saved amount in Arduino. If the HID scanner input matched with the saved number the lock will open. If the RFID value the scanner does not match the RFID stored value which would be false and if the same happens three times in a row and send a text message "Someone trying to access your bike" with a location ID is being sent to you the owner of a connected bike.

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 9 Issue III Mar 2021- Available at www.ijraset.com

IV. MATHEMATICAL MODEL

Let X be the whole system i.e. X = input, process, output
where,
Input is the RFID card.
This process is an RFID sensor scan for RFID.
Output closed on.

INCLUDING = RFID card
where,
X be the user
Y = RFID card number collection
ID = indicates this card number is authorized or not.

A. Process

1) Step 1: The administration will load the RFID value.
2) Step 2: The system will notify you of the pre-programmed, RFID card value.
3) Step 3: Finally, the system will show the output i.e. the lock is on.

B. Result

The system will provide the output when a person checks the RFID card and locks it open or not. If the card number does not match, send the location to the registered number.

V. ALGORITHM

A. K-means Algorithm

The functionality of the k-means algorithm is as follows:
1) Step 1: Select the number K to determine the number of clusters.
2) Step 2: select random K points or centroids.
3) Step 3: Assign each datum to their closest centroid, which can be from pre-defined K collections.
4) Step 4: Calculate the variation and replace the centroid replacement for each collection.
5) Step 5: Repeat step three, which means set each datapoint in the new centroid closest to each collection.
6) Step 6: If any redistribution is taking place, then go step 4 further to FINISH.
7) Step 7: The model is ready.

VI. IMPLEMENTATION WORK

Fig. 1 RFID card

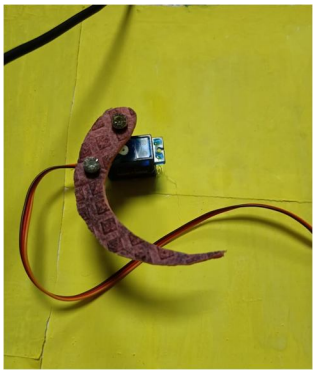


Fig. 2 Servo motor

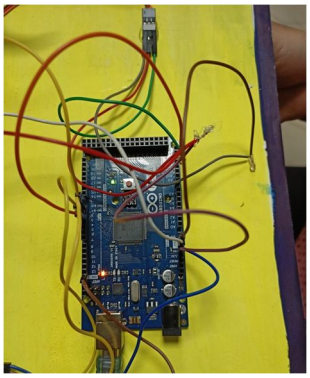


Fig. 3 Arduino mega

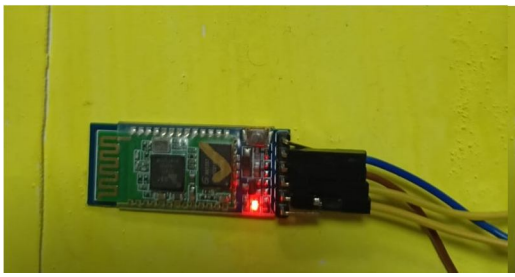


Fig. 4 Arduino with Bluetooth on

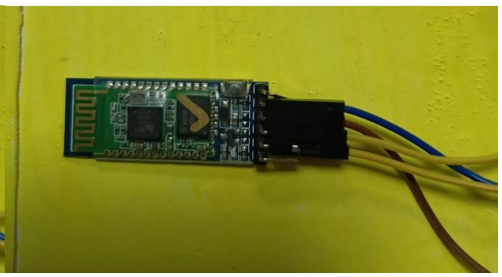


Fig. 5 Arduino with Bluetooth off

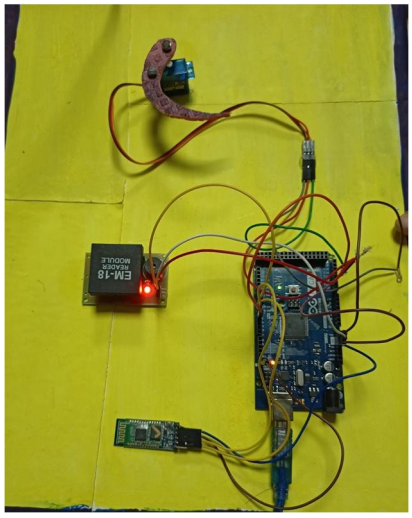


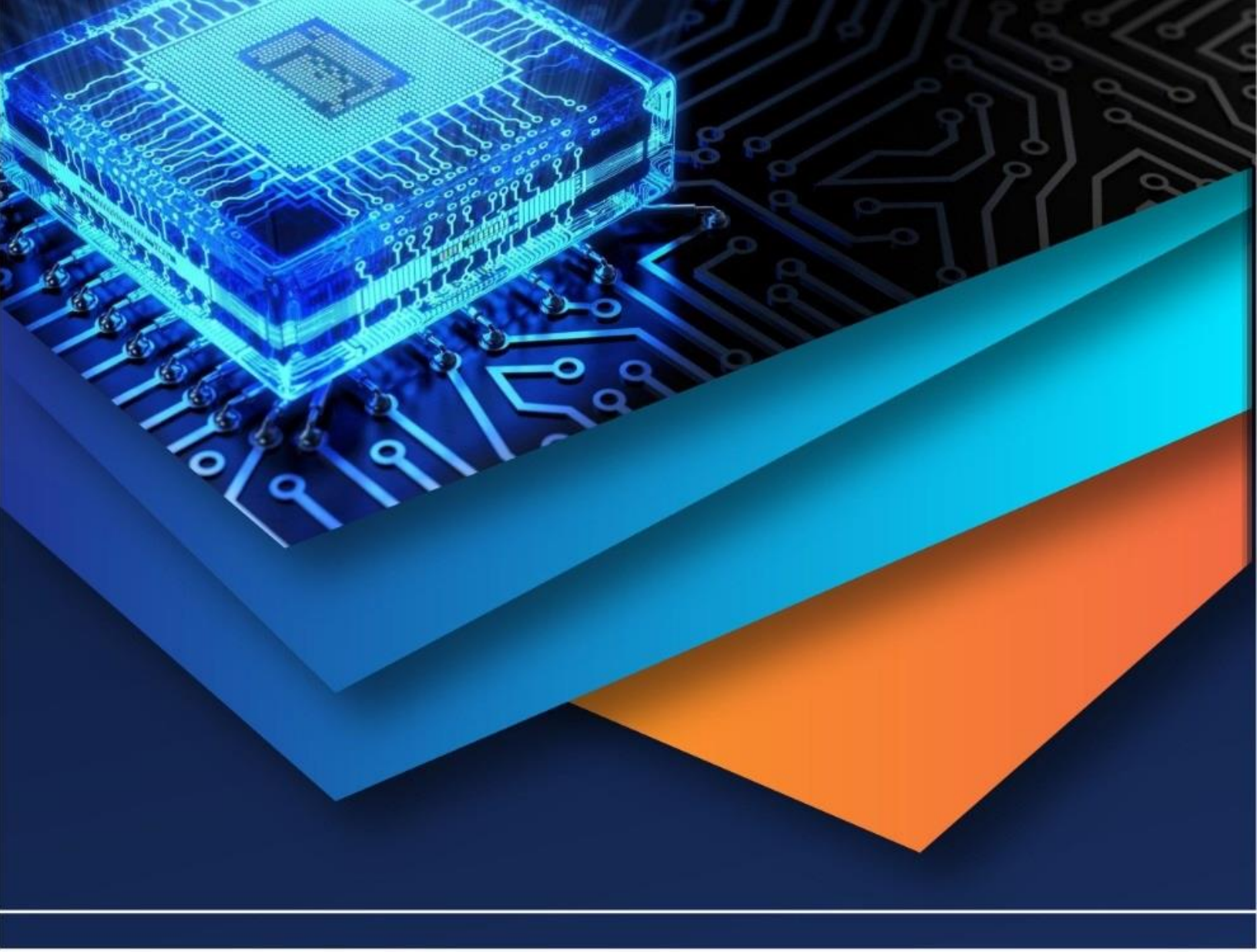
Fig. 6 Full setup

VII. CONCLUSION

Our proposed electric bicycle system is one of the best safety practices. It is an effort to build a 'Smart Bicycle' to reduce the risk of a cold theft. And it's designed to make things more comfortable for the cyclist. It will increase your safety on both the bike and the safety of the bike as well. It will also help the passenger to get to his destination without having to worry about the location.

REFERENCES

[1] T.Sabanayaga m 1 , Dr. V. Prasanna Venkatesan2 and Dr. NK. Senthamaraika nnan3, “A Comprehensive Survey on Various Biometric Systems”.
[2] K. A. Mamun, “Anti-theft bicycle Security system with preventive action”.



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY