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AUTOMATED SIDE STAND FOR MOTORCYCLE HARDWARE IMPLEMENTATION

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ABSTRACT: Motorbikes are popular because they are easy to move around and park takes up very little space. However, accidents often cause severe injuries and even fatalities. The internal and environmental factors that contribute to these occurrences are diverse. One of the reasons is people forget to lift the side and get up but there are technological fixes that can assist. This study presents a new type of motorbike side stand that is capable of being raised after the bike is in motion and lower when it comes to a stop. The design is controlled by an Arduino UNO code that manages the sensors, relay switches, and regulators. There is no need for any other kind of energy storage or complicated wiring because the system is meant to draw power from the motorcycle's batteries.

Theft of bicycles of all kinds is a widespread problem that occurs worldwide. It is critical that we safeguard our bikes against theft because most cycle owners whose have lost their vehicles may never be able to retrieve them. The fact that bike stands must be handled manually, which may be particularly unpleasant for women, is a huge problem for bike owners. Thus, the concept of protecting bicycles from theft, as well as the motorised motor biking stand slider developed for this project, are both addressed. This project uses Arduino, a fingerprint reader, and GSM to create a system that only allows approved users to power up the bike. If an authorised finger is placed over the scanner , the Arduino based main processor recognise the user and activates the motor by providing power through a relay. A green light will illuminate when the power to the relay is turned on, indicating that only authorised individuals are riding the motorbike. When the bike is turned on, the side stands will rotate to a stable position automatically. The key turns off the motor or cycle, and the side stand drops to a certain position so that the bike may be parked. In order to show this notion in action, a prototype model similar to the one shown with this abstract will be constructed and used in a live presentation. When the bike is shut off, the permitted person must once again show his identify using biometrics technology called as before the bike may be turned on. Imagine that a person who has not been authorised to ride the bike tries to steal it by showing his finger through a scanner, which triggers an alarm and sends data to the relevant mobile phone.

Keywords
Accidents, smart bikes, Arduino Pro Mini, Gear shift systems, and lever mechanisms for bicycles, Fingerprint scanner, GSM module, Buzzer, Power supply unit, limit switches.

I. INTRODUCTION

Motorcycles are a practical mode of transportation in almost every situation, including those with respect to time, traffic, parking, and safety. A small number of studies have found evidence to back up these claims. Vehicles will often continue to circulate road systems until a parking spot opens up. As a result, there will be more vehicles on the road, leading to higher fuel use and environmental degradation. These problems would disappear if more people rode motorcycles throughout town. The back stand is vital while parking the motorbike. However, it has serious downsides when driving if it doesn't get raised. Accidents can occur if a cyclist fails to release their rear stand before making a left turn. Even though some motorcycles include a side sit position indication in the instrument panel, many accidents still occur because of this. Since riders often forget to raise the side stand before starting their bikes, some sort of mechanism is required. This system's mechanical and electrical parts work together to raise and lower the side stand with no input from the rider. In order to

work, the system requires signals from limit switches, actuators, and sensors. Programming and controlling conditions are provided via little Arduino boards.

The prerequisites are detailed below. When the key is withdrawn and nobody is sitting in the chair, the stands should go down mechanically. When the key is switched on, the stand should rise swiftly under the weight. This side stand equipment may be attached to any motorcycle, regardless of make or gear ratio. The fact that it doesn't rely on any other motorcycle systems makes it a breeze to set up. It's a rather small system. It's possible that it may use the motorcycle's internal power supply, negating the need for an external battery. It's also safer than other stands scientists have built in the past.

Two-wheeled vehicles, being more flimsy, are more likely to be involved in accidents. One common cause of motorcycle mishaps is because riders don't properly secure the side stands after parking the bike. Therefore, in this section, we suggest a side platform slider mechanism that automatically slides the side platform back into position when the user starts the bike. The demonstration model of this system includes a stand-in bike starter as well as a frame to store the starter, stand-in bike, a side stand. The frame is used to secure the gallbladder in place. A microcontroller circuit, formerly employed to operate the stand's sliding mechanics, becomes the basis of the starter. Once a user's identity has been confirmed using biometric data like fingertips or iris patterns, they may be granted access to an electronic system. When doing so, instead of using a pre-registered template, a biometric that has already been recorded. As the quantity of biometric sample data grows, so does interest in the capacity to discern fingerprint pictures and use them to serve security purposes. With this system, it's possible to scan and save everyone's fingerprints. Fingerprint sensors are a top-notch example of a well-designed component because of its universality and high accuracy. Digital locks were once standard on Waggons. We'll get some practise using an R307 fingerprint scanner. The conventional method of starting a motorbike will be altered. In this scenario, the voltage stabiliser will route power from the motorcycle's ignition control connection to the module. The R307 biometric module takes 10 seconds to complete a scan of the finger. If a match is found between the scanned fingerprint image and the stored database of fingerprint images, the module will deliver a positive signal, which will trigger the starting relay. If the fingerprint isn't recognised by the detection device or if the sample acquired during the initial stage of the scanning of fingerprints for authorisation doesn't match one of the data present in the database, the module will refuse to transmit any kind of single, and only one additional event takes place that is necessary to start the motorcycle's engine. The standard mode of transportation is the two-wheeled bike. Two-wheeled vehicles are notorious for causing mishaps due to their flimsiness. Some of the many reasons for such mishaps are as follows: "Side stand" infraction for going too fast in a residential area. The most common of these is failing to properly raise the side stand of the motorbike. This development has allowed for the creation of contemporary motorcycles with side stands that automatically elevate when the rider begins to pedal. The side stand, 12-volt battery, and integrated bike starter were all included into this structure. Some of the final parts include the externally mounted servo metre, the board for the Arduino, motor driver, and gears. Microcontroller, or very small central The starter's switching provides input to an Arduino circuit, which in turn activates the side stand's raising mechanisms, either horizontally or vertically. So, when the rider turns on the bike's ignition, a circuit is activated electronically to lift the side stand. When the motorbike is shut off, a mechanism senses the cessation of battery power and raises the side stand to an upright position. Vehicles, especially two-wheeled ones like motorbikes and bicycles in particular, play a huge role on today's rapidly expanding world. Interstate travel is the primary application for them. Despite their usefulness, they have the potential to result in fatal events like accidents, which are typically the result of careless riding on the part of the rider. Most accidents may be avoided simply by remembering to elevate the side stand. There have been a plethora of attempts to take the initiative and attempt to solve this problem, but they fail too so. This applies to any type of bike, so keep that in mind. The mechanism for the automated side-stand sliding will be modelled after that of a bicycle. Because power from the combustion engine is transmitted to the back wheel through a chain in every motorbike. Since the existing design arrangement necessitates that the side stand be located among the chain engine and the sprocket rotation, the side stand is instantly retrieved. This autopilot feature is quite useful in the parking lot. There's only one method, but it has the potential to cover a wide range of bicycles. The present setup is controlled by a microcontroller called Arduino UNO that is linked to various components like as sensors, officials, and relay switches. There is no need for a separate power source, as the system is designed to draw all of its juice from the motorcycle's battery. Motorcycles typically have supports to prop them up while not in use. In most cases, the bar or rod is mounted to the motorcycle's frame near its bottom and pivots upward and out of the way during the rally. A motorbike can be propped up against the bar by extending downward into a slanted posture. The bar is slung up and along the motorcycle's frame so that it doesn't get in the way when it's in use. When a motorbike rider does not raise the throttle before entering a banked turn, the bike is often thrown to the ground. In most cases, both the rider and the motorcyclist will sustain serious injuries. The bike's side stand will be automatically retrieved by the system if the rider forgets to lift it before beginning to move. Its operation is modelled like that of conventional bicycles. Power is transferred from the motorcycle's engine to the rear wheel via the opinion, which revolves in a linear fashion thanks to the chain. The sprocket on the back wheel absorbs the linear energy of the chain and transforms it into circular motion.

The rear wheel's spinning action causes the motorbike to move. Based on this, a technique to retrieve the side stands is developed. The sprocket has to be wedged in between the chain's drive mechanism in order to turn. The essential component of this system is the sprocket. A specially designed component, the lifting lever, turns with the help of the chain of custody, which supplies the power. With this turn, the locked pushing lever will push the side stand back into position.

The sprocket in the inciter assembly spins clockwise when the chain is turned anticlockwise.Despite its usefulness, accidents can still happen if the rider is careless and fails to take precautions, like as raising the side stand. There are a lot of preventative measures that have been put in place to deal with this problem, but they all either require more energy or aren't sustainable in the This method is more efficient, uses no extra energy, and can be easily implemented on any motorbike. The concept of the new "Automatic Side stand retrieving system" was inspired by the design of bicycle side stands. Since all bikes utilise chain drives to transmit power from the motor to the back wheel. given that every motorbike use a link drive to transmit torque from the motor to the wheel in the back. The chain drive stays in its intended position, the bike spins, and the front stand is retrieved mechanically. Automobiles serve a crucial purpose in today's society. A self-righting vehicle is a two-wheeled vehicle. Over the course of the last seven hundred years, there have been a handful of half-hearted attempts to come up with and construct two-wheeled vehicles. Two-wheeled vehicles are rapidly gaining popularity in developing nations like India because they are cheap, easy to operate, and pleasant for short trips. When in a hurry or when it's not convenient, many people who ride motorcycles on two wheels forget to raise the side stand.

I. LITERATURE SURVEY

Journal of Imaginative Imaging Technologies (JIIP), 1(01), 11- 19(2019); M. H. D. Koresh, "computer vision-based traffic sign monitoring for smart transport." In order to enhance the vehicle's capacity for defensive driving and course planning, this research presents a real-time traffic sign detecting framework. The capsule neural network, used in the proposed method, surpasses the convolutional network in terms of both the robustness to spatial variation and the sensing accuracy of traffic signs. While evaluating the network with the Indian traffic info set, the capsule network showed a 15% improvement in accuracy over the CNN and the RNN.

Department of the department of geography the state of Wollongong, 1980, 4 pages [2]; Robison, Wollongong studies in geography no. 14, When there are simply too many cars on the road, it slows everyone down. R, “Problems in the urban surroundings: congestion in traffic and its effects.” It will likely be especially bad in the morning and afternoon rush hours inm the central business district and other key employment hubs. However. This could happen on virtually any road network. The International Journal and Magazine of Automative Service Technology, “ Fabrication and analysis of chain side stand retrieval system,” Volume 2 (2015), Issue 7 (July), pages 211-215 [3] Engineering, Technology, Management, and research, ISS+SN No. 2348-4845. As a means of vbolstering motorcyclists in situations where such aid is not expected. The standard is usually a bar or rod that can be pivoted to a high rally, downwardly prolonged position and is attached to the lowest section of the bicycle frame so that the bike.

It works in the same way that bicycles do. The engine provides the necessary torque to turn the bicycle's back wheel, which in turn propels the chains in a straight line. The chain's linear motion is converted to circular motion by the back wheel sprocket. A side stands retrieval mechanism is built using this technique. The system's primary moving component is the sprocket. The lowering lever is a custom-made device that is driven by the chain's rotation. When you turn the knob in the other direction, you may retrieve the side stand by pulling the operative lever. When the chain rotates anticlockwise, the sprocket in the inciter assembly takes in the kinetic energy and uses it to turn in the other direction.

"Review: Improving safety aspects in two-wheeler bike," by am Sumit pandit, Gunjan Panchal, Akshay Mahajan, a Darshan Panchal, and Nikhil Rana, published in the global journal of Advance Research in Engineering, and Sciences and Technologies, Volume 4, Issue 3, Maech-2017, pages 95-101[14]. Motorbikes are the most popular mode of transportation since they are convenient and easy to park. However, major injuries and even fatalities are all too common outcomes of accidents. There might be many different internal and external factors that lead to these mishaps. Forgetting to elevate the side stand is a contributing factor that may be avoided by paying attention to a few technical issues. In this paper, we'll look at a proposed automated motorcycle side stand that would elevate as the bike moves and descend when it stops. The design is controlled by an Arduino Uno software and has relay switches that are needed, regulators, and sensors. Since the

system is intended to draw power from the motorcycle
batteries, neither an external power source nor any additional
complexity are needed.

Bharaneedharan Muralidharan as well as Ranjeet Pokharel published "Automatic Side Stand Retrieve System" in the February 2014 edition of the Indian Journal of Studies (IJR), ISSN: 2250-1991[5]. Bicycles, and more especially a new type of motorcycle stand, are the subject of this article. In this work, a system is proposed that, while the motorcycle is in its running position, raises the stand to its elevated position.

Pratik das, Dhawal Bante, Saurabh, who Dangote, Saket Bure, and Pravin Barapatre; Pushpak Manmode; Prashant Khadatkar; Pratik das; Dhawal Bante; Saket Bure; Automatic side stand
system for lifting heavy objects, "IJSETR: An International Magazine of Science, Engineering, and Technology Research," Volume 5, Issue 4, April 2016, ISSN:
2278-7798, pp. 1153-1156[6]. Two-wheeled

Motorcycles and bicycles, in particular, play an important role in the daily commute. Despite its usefulness, accidents can still happen if the rider is careless and fails to take precautions, like as raising the side stand. Many preventative measures

have To remedy this inefficiency, a cutting-edge project is selected; it works in tandem with this idea, is simpler, doesn't call for any more energy, and can be implemented on any motorbike. The novel "Automatic Side Stand Retrieving System" is inspired on how bicycles work. Since all bikes utilise chain drives to transmit power from the motor to the back wheel. Because it is held in the chain drive and the spinning arrangement, the side pedestal is brought back automatically.Automatic Along Stand Lifter for Motorcycles: Its Development and Construction, R. Anlin j. Selvendran. P. Ashik Mohamed, and Riyaz k Mohamed. Volume 7 of the international issue of the International Journal of Bioengineering Research and Technology (IJERT), ISSN:2278-0181, features the proceedings of the Et EDM-2019 conference. Two-wheeled vehicles, such as motorcycles and bicycles, are especially important in today's developing nations. While they have their uses, they aren't without risk, especially when careless riders are involved. If the side stands aren't raised, it might cause an accident. Pressing the lever that turns the gear to extend the side stand of a bicycle might lead to innovative new designs that make bikes safer. Therefore, we developed the "Automatic Side- Stand Elevation for two-wheeler" project, which is based on how bicycles function. When the rider shifts into first gear, the motorcycle fires right upwards and the front stand rises mechanically. automated side stand raising mechanism was developed by Aniket Gulhane, Krishna Gawande, Bhagwat Gawande, Shanti Dhule, and Chaitanya Deshmukh. Their findings were published in the April 2017 issue of Volume 5 No. 4 of the International Journal of Economic Technologies in Research into Engineering (IJETER), Pages 7–11. These days, motorcycles and other two-wheeled vehicles are the norm. While they have their uses, irresponsible drivers on the road are to blame for a number of incidents that could have been avoided. A cyclist can protect themselves from this potentially dangerous circumstance by installing such a mechanism on their bicycle.Published in the International Journal of Engineering and Advanced Technology (IJEAT), with the title "Automatic Side Stand,"Page numbers for Volume 3, Issue 4 (April 2014) of ISSN 2249-8985 are 179–189[9]. To name a few: Satish Kumar Dwivedi, Javed Rafiq, and Vishal Srivastava. Also, Tejaswi Kumar, Javed Gupta, Sourabh Kumar, Vinay Kumar, and Javed Rafiq. The side stand of a parked motorcycle. If the side stands are not withdrawn beforehand starting out on a ride, the rider might lose control and contact the ground on a turn. The stand's release state is now detected via sensors. The motorcycle side stand consists of a metal rod and a helical springs that are positioned off centre. When the motorbike is lifted off the stand, a part stands automatically retract, For the April 2018 issue of IRJET, see Volume 5 Issue 4 (p-ISSN: 1315-1317[10] ISSN:2395-0072; e-ISSN:2395-0056.

Ankit Kumar Rai, Amit Singh, Chadan Yadav, Jay hind Yadav, Parson Choudhary, and Chandan Yadav. Motorcyclists nowadays are more likely to be involved in preventable accidents, despite the availability of safety features such the "two-wheeler with automatic side stand." The most typical case of naivety involves riders of two-wheeled motorcycles who fail to remove the side seat before turning the engine over. The purpose of this work is to provide a mechanism for regaining access to a side stand on a motorbike with two wheels. The present effort's primary focus is developing a chain sprocket system with an associated arm for stand recovery. The stand may be easily and quickly removed using the specified item before the two-wheeler ever joins the fray.

Ride lock link by Sanjeev N.K., an International Journal of Engineering Science and Research, Volume 2, Issue 9, September 2013[11], International Standard Serial Number (ISSN): 2277-9655. The bike main stand unfolding ride lock link is a lifesaving device that prevents riders from using their bikes with the side stands retracted. By keeping the vehicle's centre - gravity from changing owing to an imbalances or surface barrier, the rider's life is saved whenever the side stands are retracted. The connection for the side platform lock is cheaper, stronger, and easier to set up than alternatives that need extra hardware and fittings.

We have Christians Igel, Jan Salmen, Christians Igel, Christians Salmen, and Sebastian Houben. To identify traffic signs in images taken in the real world, the German Transport sign identification Benchmark is applied. International Joint Conference upon Neural Networks, 2013, pages.1-8. Real-time roadway sign identification, or the detection of highway signs in natural photographs, is a challenging computer vision task with substantial real-world relevance (IEEE, 2013[12]t). For some time now, high-tech driver assistance systems have been on the market, allowing for the detection and identification of traffic signs. Despite the many competing hypotheses, the present situation regarding the art on this subject is murky at best.

The lack of comprehensive, objective comparison across these methods likely accounts for this. As part of IJCNN 2013 (International Joint Congress on Neural Networks), we will be holding a competition called "German Traffic Sign Detection Benchmark" in an effort to bridge this gap. We provide a real-world baseline dataset for traffic sign detection, complete with evaluation metrics, background information, and a web-based interface for comparing different approaches. We separate Some of the most popular detection techniques, such as the linear classification algorithm based on HOG describes and the The Viola-J detector depending on Haar features, are among the baseline algorithms being considered. A recently published problem-specific approach is also studied; it employs colour and shape in a Hooghly voting system that is based on a model. Our presentation concludes with a look at the winning algorithms from the IJCNN competition.The book "Traffic Sign Understanding and Analyses for Intelligent Vehicles," written by Arturo De la Scalera, j. Mario Mata and Ma Armingol. [13] Image and Vision Computing, Vol. 21, No. 3, pp. 247-258 (2003. The topic of outdoor object identification is explored in this article. There is no way to foresee how the sun will shine or which way the buildings will face. The

selection of traffic or road signs as the object type was motivated by the fact that they may be used in a wide variety of contexts, including sign repairs, highway and city inventories, driver assistance networks, and intelligent autonomous vehicles. In the detection phase, a genetic algorithm is used to ensure invariance localisation to variations in distance, size, orientation, lighting conditions, occlusion, plus the presence of objects of exactly the same colour. IEEE proceedings on automated transportation 13, no. 4 (2012): 1484-1497 [14]; Mohan Manubhai Trivedi, Andreas Mogelmose, and Thomas B. Moselund, "Vision-based traffic sign detection and analysis for adaptive driver assistance systems: Perspectives and survey." We give a literature review on traffic sign identification, including several TSR detecting techniques for better driver assistance. We go down the three steps of traffic sign detection—segmentation, extraction of attributes, and final sign detection—to show how recent studies have improved each one. While TSR has been studied for quite some time, we highlight open research challenges in the literature, like a lack of use of publicallyreadily available stock photography, and a over reliance on road signs from Europe. We also discuss the potential next steps for TSR study, including the inclusion of context and localisation. We also unveil a fresh, public database of American traffic signs.Chen, Long, Qingqun Li, Ming Li, Qingquan Li, Ming Li, and Qingzhou Mao wrote "Traffic signs recognition and identification for smarter vehicle" for the 2011 IEEE Innovative Vehicles Symposium (IV), pages 908-913. IEEE, 2011[15]. In this study, we provide a high-quality, real-time computer vision-based intersection sign detection and identification system tailored to vehicles. During the detection phase, regions of interest (ROI) are quickly generated by performing a color-based segmentation scan of the scene. Sign candidates inside ROIs are located using a variety of Haar wavelet characteristics learned via AdaBoost Pekar, Ali Ufuk, Ouz Tosun, Huseyin Levent Akn, and Tankut Acarman. "Map matching and traffic sign recognition fusion." Pages 867-872, 2014 IEEE Intelligent Vehicles Workshop Proceedings. IEEE, 2014 [16]. Improving the vehicle's capacity for safe driving and course planning is the focus of this research into an online traffic sign perception (detection and identification) system. The modular neural network, used in the proposed approach, outperform its convolutional counterpart while also eliminating the requirement for any human intervention.

he capsules network is more trustworthy in its interpretation of traffic signs and has greater resistance to spatial variation than the convolutional network. Evaluation on the Indian Traffic dataset shows a 15% improvement in accuracy using the capsules network in comparison to CNN and RNN. Fatin Zaklouta and Bogdan Staniculescu. "Real-time detection of traffic signs in three stages." n Robotic and Autonomous Systems 62, no. 1(2014): 16-24[17]. The ability to recognise traffic signs, or TSR, is an integral aspect of modern driver assistance systems. Traffic signs are effective because they warn drivers of upcoming dangers including pedestrian crossings, slippery roads, and road repairs. As a result of our study, we propose a three-step, real-time recognition of roadway signs system that includes detection, classification, and segmentation. Specifically, we employ a color-adaptive threshold to isolate and remove red areas from the picture.

enhancements. The detection is performed using a strong linear support neural network (SVM) and Histogram of Oriented Gradients (HOG) features. Tree classifiers k-d bush and random forest methods determine the meaning of the observed traffic signals. A spatial weighting approach is proposed to improve the performance of the k-d tree. Fisher's the criteria and Random Forest are used to squeeze more information out of the feature space and improve classification accuracy. We show that a very small sample of features—roughly one-third—is sufficient to obtain excellent classification accuracy on the German Traffic Sign Identification Benchmark (GTSRB).

Yong Yue, Bailing Zhang, Zhao Wang, and Frans Coenen; Qian, Rongqiang. Chinese traffic sign identification and recognition using a deep convolutional neural network. published as part of the proceedings of the 11th ICNC (International Conference on Natural Computation) in 2015. IEE, 2015[18]. Autonomous

Navigation, driving, and traffic signs, both written and graphic, are all covered. Our proposed system for detecting and identifying traffic signals, which is based on a deep convolutional neural network (CNN), shows impressive achievement in terms of detection effectiveness and recognition accuracy. Since we want to achieve this goal using traffic, Chinese traffic signs collected in the field have also been used to validate the validity and viability of the proposed method. Wenyu Liu, Xiang Bai, Xingang Wang, Xiang Bai, and Yingying Zhu. Fully convolutional network-guided recommendations for traffic sign identification and recognition. 214:758-766 (2016, Neurocomputing)[19]. Safe driving, route planning, robot navigation, and other related areas make traffic sign detection and identification a hot issue in computer vision. We present a novel system that makes use of two different kinds of deep learning techniques to identify objects and direct traffic sign recommendations. Our central idea is to achieve fast and accurate traffic sign identification and recognition by using a convolutional neural network to classify suggested traffic sign families. We boost the cutting edge since the traffic scenario is so complex. Incorporating a trained FCN into the Edge Box proposal technique for objects. In order to come up with more discriminatory choices, the FCN-guided object proposals aids in the speed and precision of the entire system of detection. The proposed methodology was tested using the publicly accessible Swedish Traffic Signs dataset (STSD), and the findings were state-of-the-art.

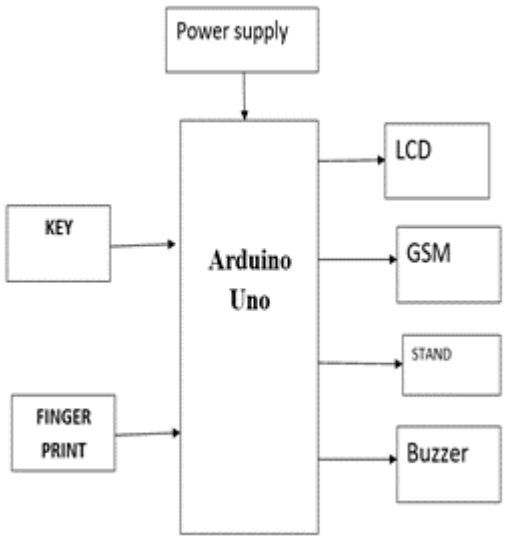
Baagyirew Y. Edward, Adebayo Felix Adeloya, Ayidzoe Abra Mighty, Patrick Mensah Kwabena, and Ayidzoe Abra Mighty. Information and Computing Science Journal of King Saud University, 2019[20], "Capsule Networks" research. Language translation, object recognition, object segmentation, and picture recognition are only some of the problems that modern computer vision aims to solve. Since Symbolic Artificial Intelligence's hard-coded rules can't handle such complexities, deep learning (DL) models like Central Neural Networks (CNN) were developed. Capsules Networks

emerged as a response to CNN's limited detection of object position and deformation and its demanding training data needs. Nowadays, capsule networks are all the rage in the field of deep learning. They have done better than convolutional neural networks on the aforementioned tasks, hence their hype is well-founded. Researchers haven't been able to fully utilise this breakthrough despite the performance potential it holds due to a lack of information as architecture and understandings of the inner workings of capsules. In this paper, we provide a comprehensive evaluation of current topologies, tools, and techniques for implementing capsule networks. Motivating academics and businesspeople to use this emerging field to its fullest potential. We outlined the successes, the gaps, and the uncharted territory. The fundamental value of this survey article is the information it provides on the state of the art in pod network implementation and design.

III EXISTING SYSTEM

There are now two main components of motorcycle side-stand systems: a mechanical design and an electrical control. Simply put, we'll be talking about how to code a board with an Arduino to control a regular motorcycle side stand. Both the top and bottom limit switches are permanently attached to the side stand. Since this Arduino Pro Mini can only run on 5V, the 12V to 5V converter these limit switches supply is essential.

Sensor, actuator drive, measure, and buzzer signals are processed by the boards of the Arduino Pro Mini and sent forth. The 10K resistor alerts the programmed Arduino pro Mini if the ignition switch is switched to the ON position. When the side differentiate is being raised or lowered, the Arduino sends both output signals and the analysed input signals to the motor control driver, allowing the driver to either activate or disable the generator and reverse the axis of rotation of the motor's shaft accordingly. As soon as you turn the motorcycle's key to the ON position, the side support is ready to be raised. If the side stand is raised to its highest point, its upper limit switch will begin warming the Arduino Pro Micro. According to the predetermined instructions, the motor will not allow the stand to be elevated any further. When the key is removed from the ignition, the side stand automatically descends to its lowest setting, where it becomes locked in place by a lower limit switch. When the side stand cannot be raised or retrieved, the motor automatically shuts off and an alarm sounds. In this case, an electric current sensor is used.

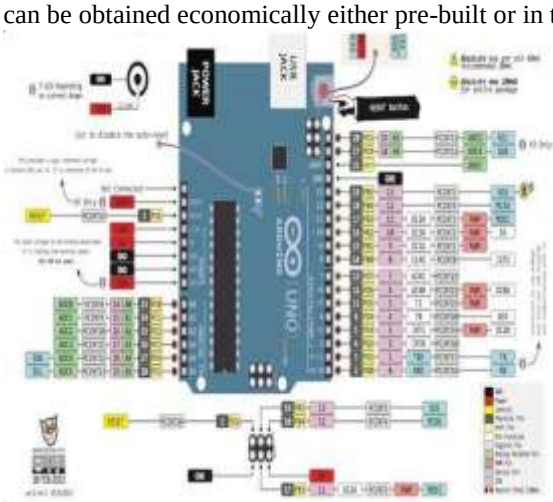


The motor receives a voltage signal within a range determined by Arduino code. The side stand requires extra strength to hoist if it faces any obstructions in the path of the lift-up or retrieve-down. Additional voltage and amperage are needed to complete the work at hand. If the user's current consumption goes beyond the predetermined threshold, the motor will automatically turn off, a buzzer will ring, and a light bulb will illuminate to alert them. An additional role played by the motorcycle's 12V battery is that of a step-down transformer. Overcharging the system is a risk. Once our 7805 regulators have been fixed, the power input line may go directly to the battery. Therefore, no changes will be required to the electrical framework once this new device is integrated into the existing system. The new attachments' security is an additional concern. The modern system should be resistant to water. It's safe toassume that the system won't work properly if a side stand is moved to the upper part of the motorbike. The problem is remedied by the presence of a compartment under the seat that houses all the electrical components.In the event of a system failure, an audible alarm and visual indicator would be activated. Resetting the system involves rapidly cycling the ignition key's power supply. If, after resetting it, it still doesn't work, you'll need to bring your car into a shop to have a professional look at it. It is possible to manually raise and lower the side stand, much like on standard motorcycles.

III Hardware Implementation of Automatic side stand for motorbike

A. Arudino UNO

Microcontroller kits developed by the company, project, and and customer base known as Arudio allow makers of digital devices and interactive goods to add sensors and actuators to their creations. The project's results are released under the GNU lower General Public Licence (LGPL) or GNU Public Public Licence (GPL), making the hardware and software free for anyone to reproduce and distribute. Boards for Arduino can be obtained economically either pre-built or in the form of a do-it-yourself kit.



Arduino boards may be built using a variety of microprocessors and controllers. The boards come with analogue and digital I/O pins so that they may be connected to shields and other circuits. Serial communications interfaces (USN on certain models) allow for connection to personal computers and the transfer of software. Microcontrollers are often programmed in a language that is a dialect or C and includes C++ capabilities. In addition to the usual compiler toolchains, the Arduino project also provides a processing-based integrated development environment (IDE).

Arduino was conceived in 2005 during a class at Italy's Interface Design Institute Ivera. The intention was to provide both amateurs and professionals with a low-cost, low-complexity means of creating devices that employ sensors as well as actuators to control their environment. Amateur hobbyists may find a wide variety of consumer electronics, from simple robots to motion detectors and thermostats, on the market today. In an Italian café in Ivera, where the project's developers initially met, the name "Arduino" was coined. Arduino OF Ivera, also known as Its Margrave of the February of Ivera, governed Italy about 1002 to 1014 and is commemorated on the bar's label.

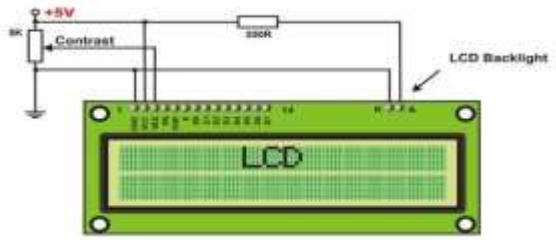
B. Global system for Mobile Communications (GSM)

The Global System for Mobile Communications, or GSM for short, standards were developed by the Telephony specifications Institute (ETSI) to describe the 2G digital cellular networks, which are used by mobile phones. Primitive or 1G analoguecellular networks were replaced by the GSM standard, which initially outlined a digital, circuit switched network suited for full duplex audio communication. Subsequently, this was extended to incorporate data transmission, first by circuit switched transport, and then via packet data transfer via GPRS (General Passenger Radio the Services) and the EDGE (Enhanced Data Speed for GSM Evolution). Further progress was gained when the 3GPP established the UMTS standard for the third generation and the LTE Advanced standard for the fourth generation. The GSM Association has the rights to the "GSM" trademark. Because GSM is a wireless system, mobile phones establish connections by scanning for cell towers in their near neighbourhood.The global success of the GSM technology has led to extensive roaming policies among mobile phone companies, allowing their customers to access their cellphones in a variety of other countries. In contrast to its predecessors, GSM, the second generation of mobile phone technology, used digital call quantity speech and signalling channels. Therefore, the data transmission capabilities of the 3G phase partnership project (3GPP) were added to the system. In Europe and other areas of the world, many people use the Global System for Mobile Communications (GSM) digital mobile phone network. The most widely used digital cell telephone system is the Global System for Mobile Communications (GSM), which uses a subset of the time-division multiple access (TDMA) protocol. Data is digitised and compressed by GSM before being transmitted over a medium with two other user data streams, each of which occupies a separate time slot. It may operate on either the 900MHz nor 1800MHz bands.

C. Liquid Crystal Display(LCD)

In place of LEDs (Seven Segment LEDs or other Multi sector LEDs), LCD is being used more and more frequently because of the following reasons:Because of how cheap LCDs are getting.
the potential for displaying text, graphics, and data. When compared to LEDs, whose can only show a limited set of characters, this is a huge improvement.
By integrating a controller for automatic refreshment within the display, the CPU can focus on other tasks. However, the LED requires a CPU refresh to keep displaying the updated information.

Two lines are used for the 16 characters on an LCD display. All the characters are made with a 57 dot matrix. The contrast of the screen changes depending on the number of lines used to show information, the power source, and any other variables. A voltage between 0 and Vdd is consequently applied to the pin labelled Vee. A trimmer pot is commonly used for this purpose, and its connections are shown in the figure. Blue or green diode-based variants of a black light. Like any other LE diode, this one requires a current-limiting resistor to ensure safe operation.



D. Fingerprint

When it comes to identifying persons, fingerprint identification has shown to be the most dependable, successful, and popular method. Records show that fingerprints were used in business dealings as early as 500 BC in Babylonia, and that by the third century BC, Chinese authorities were employing fingerprint seals on official documents. A fingerprint's regular textural pattern consists of ridges and valleys. These ridges are characterised by their Minutiae, or minute details, which often take the form of ridge terminations and ridge branchings. According to experts, comparing fingerprints relies heavily on a cluster of small dots located in the same area on each finger. Photos of fingerprints taken at a high resolution (1000PPi) may be used to collect not only minute points (known as prolonged or level 3 characteristics) but also sweat pores and other data. More and more people are taking notice of these supplementary features since their primary usage by forensics specialists appears to be for the detection of latent

E. The Turn-On Key

The bike key's primary use is as a safety mechanism to lock and unlock the motorbike, but it also has other uses.

F. Buzzer

A mechanical, electrochemical, or mechanical buzzer can provide audible signals. It has timers and alarm clocks.

G. Relay

Relays are switch that open and stop electrical circuits in response to external electrical impulses.

H. Sources of energy

An electrical power supplies is a device that transfers electrical energy from a generator to a load. A power supply's primary function is to transform an input current,frequency, and voltage into an output voltage, current, and frequency suitable for the load being powered.

VI. Result

First, the side stand may be lifted after the rider is situated on the bike and the ignition is set to the ON position. In a similar vein, the stand cannot be recovered after the key is turned off and the passenger is no longer using the seat.
Second, the motorcycle's sensor allows us to start and stop it sans utilising a key.

V. Conclusion

The side stand is raised when the motorbike is started and lowered when it is stopped, thanks to this design.

The motorcycle's ON/OFF switch is modified such that it only engages when the rider has their back on the seat.

Thirdly, the speedometer is not employed in any way. The side stand is not necessary when travelling at 0 miles per hour because of a red light.

Fourth, it may be installed on any motorcycle as it is sensor-based and independent of the bike's gears and sprockets. This study's findings suggest that lifting the side stand before riding might avoid as much as one-third of all motorcycle accidents. Still, the causes of about 70%-80% of accidents haven't changed much at all. Future bikes may be equipped with airbag systems in an effort to lessen the number of people killed and injured in crashes.

Reference

[1] Koresh. M. H. J. D. “Computer vision-based traffic sign sensing for smart transport”. Journal of Innovative Image Processing (JIIP), (2019), 1(01),11-19
Robinson, R, Problems in the urban environment: traffic congestion and its effects, Wollongong Studies in Geography No. 14, Department of Geography, University of Wollongong, 1980,4p.
Mr. V..R. Murthy, Mr. T. Seetharaman and Mr.
V. prudhvi Raj “Fabrication and analysis of sprocket side stand retrieval systems”, International journal & Magazine of Engineering, Technology, management and Research, ISSN No:2393-4845 Volume No:2 (2015), Issue No:7(July) pp. 211-215.
Sumit Pandit, Gunjan Panchal, Akshay Mahajn, Darshan Panchal, and Nikhil Rana “Review. Improving safety aspects in two-wheeler bike”, International journal of Advance Research in Engineering, Science & Technologye-ISSN:2393- 9877, p-ISSN:2394-2444 Volume 4, Issue 3,
<March-2017, pp 95-101.
Bharaneedharan Muralidharan and Ranjeet Pokharel , “Automatic side stand Retrieve system”. Indian Journal of Research (IJR), ISSN: 2250-1991, Volume 3, Issue 2, Feb 2014.
Pinto Prjapati, Vipul kr. Srivastav, Rahul kr. Yadav, Ramapukar Gon, Pinto Singh and Mr. Sandee, “Sprocket side stand retrieve system”, International Journal of Technical Research and Applications e-ISSN: 2320-8163, Volume 3, Issue 3 (May-June 2015), pp 86-87.

[7] I Pravin Barapatre, Pushpak manmode, Prashant Khadatkar, Pratik das, Dhawal Bante, Saurabh Dangore and Sanket

Bure, "Automatic side stand lifting mechanism" International Journal of Science, Engineering and technology Research (IJSETR) Volume 5, Issue 4, April 2016, ISSN:2278-7798, pp. 1153-1156.

[8] Selvendran, Anlin J P, Mohamed Ashik N and Mohamed Riyas k, " Design and Fabrication of Automatic side stand Lifter for Two-Wheeler" International Journal of conference proceedings Volume 7, Issue 06, Special issue-2019.

[9] Aniket Gulhane Ganesh Gawande, Bhagwat Gawande, Shraddha Dhule and Chaitanya Deshmukh, "Fabrication of automatic side stand lifting mechanisms", International Journal of Emerging Technologies in Engineering Research (IJETER) Volume 6, Issue 4, April (2017), pp.7-11.

[10] Vishal Srivastava, Tejaswi Gupta, Sourabh Kumar, Javed Rafiq and Satish Kumar Dwivedi, "Automatic side stand" , International Journal of Engineering and Advanced Technology (IJEAT)