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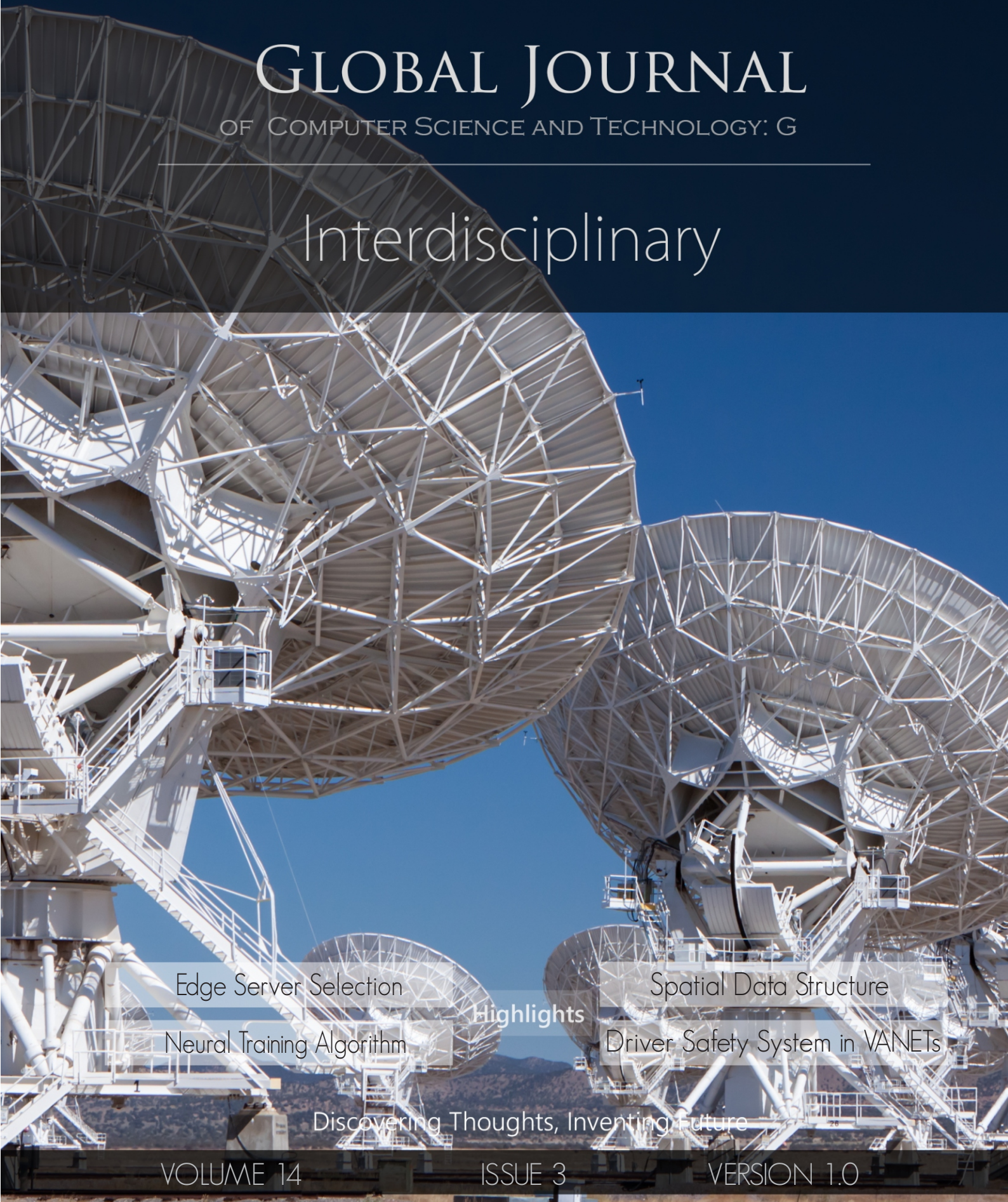

Highlights

Edge Server Selection

Neural Training Algorithm

Spatial Data Structure

Driver Safety System in VANETs

Discovering Thoughts, Inventing Future

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Worker Productivity: A Fuzzy Supervised Neural Training Algorithm Approach

By M. D. Okpor

Abstract- Productivity refers to the physical relation between the quality produced (output) and the quantity of resource used in the course of production (input). Productivity is a relative term indicating the ratio between total output and the total inputs used therein on the other hand production is an absolute concept, which refers to the volume of output. Fuzzy Supervised Neural Network Training Algorithm has been designed and implemented with Matrix Laboratory (MATLAB) and Hypertext Preprocessor as the simulation language. This paper demonstrates the practical application of soft computing algorithm techniques in various well-meaning organizations.

Keywords: *supervised-neural-network, fuzzy set, fuzzy logic, algorithm.*

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Worker Productivity: A Fuzzy Supervised Neural Training Algorithm Approach

M. D. Okpor

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I. Introduction

Productivity refers to the physical relation between the quality produced (output) and the quantity of resource used in the course of production (input) (Susan, 2009):

Productivity (P) = output (O)/ input I

Output implies production while input means land, labour, capital, management etc. Productivity measures the efficiency of the production system. Higher productivity means producing more from a given amount of input or producing a given amount with minimum level of inputs. In other words the more the output from one worker or one machine (or a piece of equipment) per day per shift, the higher is the productivity (Susan, 2009). Higher productivity is not to be taken in sense of higher workloads or faster machines alone but it is always elimination of waste of all type of labour (time and skill) machine time, capital, and material management etc.

Productivity = Output per unit of input

Productivity and production are two different terms. Productivity is a relative term indicating the ratio between total output and the total inputs used therein on the other hand production is an absolute concept, which refers to the volume of output (Gerard and Bart, 2009). The volume of production may increase but productivity may decline due to inefficient use of resource. Efficient use of input may increase productivity but the volume of production may not increase. Production refers to the end result of production system where as productivity reflects its efficiency. The benefits of productivity includes: It helps to cut down cost per unit and thereby improve the profits, gains from productivity can be transferred to the consumers in from of lower priced products or better quality products, productive entrepreneur can have better chances to exploit export opportunities and generate more employment opportunities (Gerard and Bart, 2009).

Productivity may be measured either on aggregate bases or on individual basis, which are called total and partial productivity respectively.

Total Productivity Index= total outputs/ total inputs

This index measures the efficiency in the use of all the resources. Partial productivity Indices, depending upon factors used, it measures the efficacy of individual factor of production (Andersson, 1996).

Workers' productivity can be tied to these parameters (OECD, 2002):

a) In-time Completion of task

The completion and delivery of a particular task from a hand of a specific employ is tied to the overall success of the organization. It determines if the organization project will be completed in time or not. In-time completion of task is an integral criterion for determining the productivity of a particular employee.

b) Duty Punctuality

Punctuality is tied to organization success. How can an organization attain successful, when most employees are not punctual? A particular task not completed in-time result in total delay of the overall organizational project which is highly expensive.

c) Optimal Interaction with staff

Staff cannot, and will not work in vacuum or in isolation. The specification requirement of a small sub-system must be aligned with the overall system project. Therefore discords among staffs, hamper project success and hampers productivity. A particular employee cannot be productivity if he cannot work, closely with other staff.

d) High Maintenance Culture

Organizational tools and equipment are meeting for productive organizational duties. Breakdown of tools and equipment by employees will result less productive activities. Therefore if an employee cannot

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maintain highly tools and equipment in an organization he or she is not productivity.

e) Minima Dissension with staff

Tolerant is very vital in any organization for it to succeed. Senior executive must tolerant lower level staff and lower level staff must tolerant senior executive failings leading to minima dissension and promote productivity.

f) Improved Technical, Business and people Knowledge

Constant training, attending of seminar, workshop and conference will improved the knowledgebase of any employee, which if applied collectively will improve productiveness of an organization.

g) Extra Secular Activities

All work with no extra secular activities, like after work get together will create depression, disorder and intolerant among staff. Extra secular activities must be encouraged.

This research paper is geared toward proposing implementing worker productivity: a fuzzy supervised neural training algorithm approach.

II. Review of Related Literature

The theory of fuzzy logic provides a mathematical strength to capture the uncertainties associated with human cognitive processes, such as thinking and reasoning. In standard set theory, an object does or does not belong to a set. There is no middle ground. In such bivalent systems, an object cannot belong to both its set and its compliment set or to neither of them. This principle preserves the structure of the logic and avoids the contradiction of object that both is and is not a thing at the same time (Zadeh, 1965). However, fuzzy logic is highly abstract and employs heuristic (experiment) requiring human experts to discover rules about data relationship (Angel and Rocio, 2011).

Fuzzy classification assumes the boundary between two neighboring classes as a continuous, overlapping area within which an object has partial membership in each class (Kuang et al., 2011). Fuzzy logic highlights the significant of most applications in which categories have fuzzy boundaries, but also provides a simple representation of the potentially complex partition of the feature space. (Sun and Jang, 1993 and Ahmad, 2011) Conventional approaches of pattern classification involve clustering training samples and associating clusters to given categories. The complexity and limitations of previous mechanisms are largely due to the lack of an effective way of defining the boundaries among clusters. This problem becomes more intractable when the number of features used for classification increases (Christos and Dimitros, 2008).

Artificial Neural Networks (ANNs) constitute a class of flexible nonlinear models designed to mimic biological neural systems. An ANN is a mathematical model or computational model based on biological neural networks (Gutiérrez, 2011), as an interconnected group of artificial neurons, which carries out computation using a connectionist approach. Typically, a biological neural system consists of several layers, each with a large number of neural units (neurons) that can process the information in a parallel manner. The models with these features are known as ANN models (Robert, 2000). ANNs have been widely applied to solve many difficult problems in different areas, including pattern recognition (matching), signal processing, language learning, electronic medical record processsing, tele-diagnosis and computer networking (Robert, 2000). Neural network utilize dataset. The data set is divided into three distinct sets: training, testing and validation sets. The training set is the largest set and is used by neural network to learn patterns present in the data. The testing set is used to evaluate the generalization ability of a supposedly trained network. A final check on the performance of the trained network is made using validation set. Learning methods in neural networks can be broadly classified into three basic types Supervised, unsupervised and reinforced learning (Diogo et al. 2008).

Supervised learning is the machine learning task of inferring a function from supervised training data. The training data consist of a set of training examples. In supervised learning, each example is a pair consisting of an input object (typically a vector) and a desired output value (also called the supervisory signal). A supervised learning algorithm analyzes the training data and produces an inferred function, which is called a classifier (if the output is discrete) or a regression function (if the output is continuous).

Unsupervised learning studies how systems can learn to represent particular input patterns in a way that reflects the statistical structure of the overall collection of input patterns. By contrast with Supervised Learning or Reinforcement Learning, there are no explicit target outputs or environmental evaluations associated with each input; rather the unsupervised learner brings to bear prior biases as to what aspects of the structure of the input should be captured in the output. Unsupervised learning is important since it is likely to be much more common in the brain than supervised learning (Benedetti et al., 2005).

Reinforcement learning, one of the most active research areas in artificial intelligence, is a computational approach to learning whereby an agent tries to maximize the total amount of reward it receives when interacting with a complex, uncertain environment. In Reinforcement Learning, provide a clear and simple account of the key ideas and algorithms of reinforcement learning. Their discussion ranges from the

history of the field's intellectual foundations to the most recent developments and applications. The only necessary mathematical background is familiarity with elementary concepts of probability (Richard and Andrew, 2011).

The two most widely used neural networks are the feed-forward networks and recurrent or interactive (feedback) networks, kohonen's self-organizing network, Adaptive resonance Theory (ART) and Counter propagation network are others (Chakraborty, 2010).

Feed-forward ANNs allow signals to travel one way only; from input to output. There is no feedback (loops) i.e. the output of any layer does not affect that same layer. They are extensively used in pattern recognition (Chakra borty, 2010).

This multi-layered structure of a feed-forward network is designed to function as a biological neural system. The input units are the neurons that receive the information (stimuli) from the outside environment and pass them to the neurons in a middle layer (i.e., hidden units). These neurons then transform the input signals to generate neural signals and forward them to the neurons in the output layer. The output neurons in turn generate signals that determine the action to be taken. It is important to note that all information from the units in one layer is processed simultaneously, rather than sequentially, by the units in an "upper" layer (kuan and white, 1994).

a) Feedback Network or Recurrent Neural Networks

Feedback networks can have signals travelling in both directions by introducing loops in the network. Feedback networks are dynamic; their 'state' is changing continuously until they reach an equilibrium point. They remain at the equilibrium point until the input changes and a new equilibrium needs to be found (Chakraborty, 2010).

Kohonen's Self-Organizing Network is a two-layer, feed-forward network (Beale and Jackson, 1990 and Dayh off, 1990).The first is an input layer and the second is a grid or map arranged in a one or two-dimensional array. The second layer is known as a competitive layer. Incoming patterns are classified by the nodes that they activate in the competitive layer. Similarities among patterns are mapped into closeness relationships on the competitive layer. After training, the pattern relationships and groupings are observed from this layer.

Adaptive Resonance Theory (ART) is an unsupervised, competitive learning algorithm (Beale and Jackson, 1990).It is a two-layer network arranged in feedback and feed-forward connection. The layers have different functions, unlike the Multilayer or Kohonen networks. The first layer can be either an input or a comparison layer and the second layer can be either an output or a recognition layer. Both are interchangeable during training.

III. Methodology and Design

Existing approaches in determining worker productive are based on classical set method which usually tied precision to these variables. This is usually flawed in approach because the parameters for accessing worker productivity are imprecise; therefore fuzzy logic will handled this approach very well.

Numerous algorithm has be proposed for solving real worker productivity problems such tele-computing through telematics, but still date few Fuzzy-neural network algorithm has be proposed for objective recognizing worker productivity.

IV. The Proposed Fuzzy Supervised Neural Network Training Algorithm Approach

The proposed Algorithm imbibes artificial intelligence techniques in tying the parameters for identifying worker productivity into a learning paradigm thereby establishing a conclusive boundary. Unlike the current approaches, in which success or failure are based on the wills and experiences of relevant personnel designing and administrating the approach in other to elicit relevant recognition points, success and failure in this approach are not dependent on human intuitions, but success, is closely linked within tuned-up approaches within the carefully and systematic implemented algorithm variables. The Algorithm is depicted on Figure 1

Worker productivity: Target Result ("Productive Worker", "Might be Productive Worker" and "Not Productive Worker")

Input Parameters : *Productivity Criteria*
Degree of membership function
≥ 0.50 = High degree membership function (serious)
≤ 0.50 = Low degree Membership Function (minor)
WP = Worker productivity
P = Parameters for worker productivity

Fuzzy predefined Rules

More than five Parameters =Productive Worker
Exactly four symptoms = Might be Productive worker
Three symptoms and below = Not Productive worker

// Initialization WP (P0)

1. Randomly pick a Worker K;
2. Save Target Result in Knot;
   // Loop till terminal point
3. While WP (P)<>7do;

// Not Productive Worker

1. If WP (P1); in-time completion of task is high, while other P is Low or exempted THEN Not Productive Worker
2. If WP (P2); in-time completion of task and duty punctuality is high, while other P is Low or exempted THEN Not Productive Worker
3. If WP (P3); in-time completion of task, duty punctuality and optimal interaction with staff is high, while other P is Low or exempted THEN Not Productive Worker
4. Else
5. End If

// Might be Productive Worker

6. If WP (P4); in-time completion of task, duty punctuality, optimal interaction with staff and high maintenance culture is high, while other P is Low or exempted THENMight be Productive Worker
7. Else
8. End If

// Productive Worker

9. If WP (P5); in-time completion of task, duty punctuality, optimal interaction with staff , high maintenance culture and minima dissension with staff is high, while other P is Low or exempted THEN Productive Worker
10. If WP (P6); in-time completion of task, duty punctuality, optimal interaction with staff, high maintenance culture, minima dissension with staff and Improved technical, business and people knowledgeis high,while other P is Low or exempted THEN Productive Worker
11. If WP (P7); in-time completion of task, duty punctuality, optimal interaction with staff, high maintenance culture, minima dissension with staff and Improved technical, business and people knowledge and extra secular activities is high,while other P is Low or exempted THEN Productive Worker
12. Else
13. End If
14. End

Figure 1 : Worker productivity: A Fuzzy Supervised Neural Training Algorithm Approach

V. Implementation and Discussion

The implementation of our result was dual fold; the neural training dataset was handled conveniently utilizing Matrix Laboratory (MATLAB) which serves as our simulation tool in achieving the our results because of its interactive environment for algorithm development, data visualization, data analysis, and numerical approach which was relevant to our numerical dataset which was more appropriate than with spreadsheets or traditional programming languages, such as C/C++ or Java. After pruning the dataset utilizing MATLAB, the algorithm was fully implemented utilizing Hypertext Preprocessor (PHP), which served as the language of implementation.

VI. Discussion

The implemented algorithm provides an interactive base in determining varied worker productivity objectively as opposed to the subjective approach which is achievable utilizing otherapproaches. The result was satisfactory having been able to distinctly determine worker productivity.

VII. Conclusions

This paper has demonstrates the practical application of fuzzy supervised training algorithm for worker productivityin various organization.

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Critical Comments on the Sensorimotor Approach to Consciousness

By Dr. Gabriel Jucá de Hollanda
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Abstract- Cognitive neuroscience and contemporary physicalist philosophies of mind typically hold the view that minds somehow reduce to brain activity. This is achieved through representations that evolved to map reality and are subjected to computational activity. The received view has been criticized mostly through thought experiments that rely on the notion of qualia, but philosopher Alva Noë follows a different approach, called the "sensorimotor theory". Unlike the orthodoxy, Noë argues that our minds are not inside our bodies; they are better seen as a dynamic process of embodied cognition. This means mental activity emerges from our engagement with the world around us. Noë's thesis is grounded on original arguments that are both empirical and philosophical in nature.

Keywords: *neuroscience, representation, perception.*

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Keywords: neuroscience, representation, perception.

I. Introduction

Cognitive neuroscience is the discipline that merges two influential ideas:1) The mind is an information-processing engine that builds representations of the world and 2) The brain is the locus of all mental activity. Scientists in this field expect to obtain a comprehensive account of our cognitive capacities through the use of imaging techniques such as PET (positron emission tomography) and fMRI (functional magnetic resonance imaging). The idea is to take advantage of such resources in order to understand how the brain implements mental functions. The brain is seen as hosting a kind of mapping of reality that is continually updated and elaborated through computation and external input. Put another way, the brain is a kind of biological computer.[1] The relevant computations are operations that relate representations. As a representational engine, it (very roughly) correlates sets – the representing set is causally and reliably correlated with the represented one. This allows an organism to cope with the represented set (the environment).[2] Patricia Churchland puts this idea thus: "Brains are buffers against environmental stress and variability."[3] Higher organisms are equipped with brains because evolution has exploited the advantages conferred by predicting and planning for future events that are biologically meaningful.[4]

One of the strengths of cognitive neuroscience is its ability to empirically justify its claims about the representational nature of the mind. Experiments concerning how rats navigate a maze strongly suggest capacities that cannot be explained by conditioning alone. Similar conclusions can be drawn from experiments that test the cognitive abilities of ravens.[5] These hypotheses are strengthened by a sense of continuity with the behavior of "lesser" organisms that nonetheless possess analogous skills. Even the humble jumping spider would seem to exhibit representational abilities (more specifically, it is alleged to represent spatial relations when hunting).[6] Thus, representation appears to be widespread in biological systems.

It is thought thateach and every human cognitive ability, understood abstractly or psychologically, has a correlate in neurophysiology. Philosophers of mind tend to be especially interested in the so-called NCCs (neural correlates of consciousness) and their potential to shed light on the nature of conscious phenomena, such as sensory perception and voluntary action. Fortunately for its proponents, among whom one finds many scientifically-minded philosophers, the search for NCCs has led to testable and predictive theories of phenomena such as visual perception, and this seems to vindicate the framework within which the issues are defined and dealt with.[7]

Philosopher AlvaNoë, a professor at The City University of New York, says the whole conception described above is, despite all its apparent success, overhyped. Indeed, he says it is overhyped to the point of being presented to audiences worldwide as a stunning novelty, when it has in fact held educated people in thrall for decades. In his latest book, *Out of our heads: why you are not your brain, and other lessons from the biology of consciousness,* Noë claims mainstream cognitive neuroscience has not and cannot achieve its goals, for it rests on false assumptions, some of which are philosophical in nature (pp. 5-7; 98-99).He argues firstly that it is misleading to see biological minds as information processors; secondly (and most

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[1] BROOK & MANDIK, 2004.
[2] *Origins of objectivity* (BURGE 2010), p. 9. Burge believes this is not a correct account of representation, but in any case it is the one assumed by cognitive neuroscience
[3] *Brain-wise: Studies in neurophilosophy* (CHURCHLAND 2002), p. 274.
[4] Ibidem.
[5] Idem, pp. 87, 276-277.
[6] BURGE 2010, pp. 514-517.
[7] *The cognitive neuroscience of consciousness*(DEHAENE & NACCACHE 2001)

importantly), that our minds are not located *within* our bodies, as the search for NCCs implies. Mental activity is rather a holistic process that extends to the organism's environment. Higher animals are not conscious and intelligent due to the possession of a map that passively and intellectually represents the world. Their consciousness, like most of their mental faculties, interacts *dynamically* with the world. This brings us to Noë's main point: People cannot be identified with their brains (p.24). Brain activity can only give rise to a mind when situated in a biological and cultural context of action and skills. It is high time we gave up the idea that neurological activity per se is sufficient for consciousness, which seems to imply the absurdity of consciousness in a petri dish (p.12).

At this point, readers may have noted how much Noë owes to American psychologist James Jerome Gibson. As Noë acknowledges, Gibson's innovative work pioneered an approach that matches minds to their ecological habitats.[8] Perception-endowed creatures have a viewpoint due to their ability to match sense information to the possibility of action. Consider how this relates to the meanings we grasp in things around us: E. Bruce Goldstein says that someone's initial "reaction to a flight of stairs may, in fact, be 'here is a way to go up'rather than 'here is a series of surfaces'." [9] Gibson first had the idea after noticing that contemporary studies in depth perception lacked realistic considerations about the perceiver's environment.[10] Unfortunately, he was never able to present much empirical data to support his hypothesis.[11] Noë's work can be seen, then, as an attempt to bridge this gap.

So let us look first at the negative arguments Noë advances. Those whose sympathies lie with mainstream cognitive neuroscience might think brain scan technology gives us a clear-cut picture of cognitive activities in the brain. Not quite, says Noë. The definition of a baseline relative to which one can detect neural correlates of cognition is problematic. For starters, the brain is never at rest,and comparing the baseline with the target activity involves the assumption that there are no feedback mechanisms from the latter to the former. Given the fact that there are indeed such loops in certain brain systems, one must not jump to conclusions about brain imaging data (pp.20-22). Furthermore, brain scans cannot at present tell us how metabolic activity relates to the mental goings-on of patients in persistent vegetative state. One might think that reduced brain metabolism explains impaired mental functions in vegetative patients; astonishingly, though, "it would appear that global metabolic levels remain low even after full recovery" (p.18). The upshot is that we ought not to get carried away with alleged discoveries of NCCs by cognitive neuroscientists. It is just not about looking and observing what is going on.

Another point against the identification of conscious phenomena with NCCs has to do with neural plasticity. The view that the mind is a set of dedicated information-processing modules predicts the existence of specialized systems for each sensory modality, and is supported by the apparent discovery of an area that represents faces specifically (p.110-117). Nonetheless, Noë mentions (pp.53-56) experiments with ferrets where the animals' eyes are wired up to brain structures normally used in hearing. If there were something in the visual cortex that made experiences visual, and something else in the auditory parts making experiences auditory, the ferrets would "hear with their eyes" (p.55). But this is not the case. The ferrets see with their supposed "auditory brains". This implies a malleable connection between brain structures and the qualitative character of experiences. For this reason, itis ill-advised to equate a given conscious phenomenon with activity in this or that part of the brain. The structure of the "auditory brain" is not the key here; what explains its role in the experience is its connection to a certain *source* of information. Moreover, it has been shown that depriving cats of sight during a given period in their infancy destroys their ability to see. Experimental data strongly suggests, then, that "sensory stimulation produces the very connectedness and function that in turn make normal consciousness possible" (p.49). Here is a good reason for considering the possibility that the visual character of experience is determined by interaction with the environment, and not just by activity in this or that brain structure.

So how does Noë convert the insights above into a theory that actually explains the data? In a nutshell, he claims that perceptual experience happens when organisms apply their mastery of the laws of sensorimotor contingencies (pp.47-65). Put another way, conscious beings have subjectivity in virtue of their use of special skills which constitute a kind of non-propositional knowledge. They can skillfully exploit certain potentialities to get information from the environment. Creatures that are capable of seeing, for example, have mastered the lawful dependence relation between their actions and visual input, a relation determined by the character of their visual apparatus. As Noë says, "how things look depends, in subtle and fine-grained ways, on what you do. Approach an object and it looms in your visual field. Now turn away: it leaves your field of view" (p. 60). Furthermore, conscious animals tacitly understand the sensorimotor contingencies determined by visible objects and attributes such as shape, color and size. The visual character of a shape, for example, is the set of all potential distortions that occur when a given object is

[8] *Action in perception* (NOË 2004), pp. 20-21.
[9] *The ecology of J. J. Gibson's perception* (GOLDSTEIN 1981), p. 193.
[10] Idem, p. 191.
[11] Idem, p. 194.

moved relative to the subject, and vice-versa. As Noë has written elsewhere[12] , "to see a spatial feature such as the size or the shape of an object is to explore the way the look of the object varies as we move." Visually perceived objects possess appearance properties (that is, they have relational properties that boil down to how they look from the viewer's position) that vary according to the perceiver's position. They seem subjective to philosophers precisely because they are viewpoint-dependent; in other words, they are "relations between objects and their environment."[13] Unsurprisingly, Noë sees this is a way of explaining qualia away. Appearance properties should not be seen as intriguing mental objects of some kind; they are nothing but relations things have objectively. [14]In any case, visual perception draws its contents from action. Suppose you see a circular object, such as a plate, from an angle that makes it look elliptical. The actual shape of the object is grasped when we understand how the plates' appearance (a relational property like those just described) will change as we move around it.[15] One needs to know how to interact with the environment to perceive the shape in question. Location can be handled analogously. Experience something as off to the left means knowing that pointing to it would involve the moment of a hand and arm to the left, knowing that looking at it would involve turning one's head in the same direction, and so on. Mastering the range of actions that bring us into contact with the object gives rise to perception of it.Similarly, the sensation of color is determined by the way a surface changes the light when it moves relative to the observer or light sources. The structure of such changes is lawful, and integrating the activities that rely on knowledge of the relevant laws in planning, reasoning and speech is experiencing color. At this point, the reader may have noticed that one need not posit anything over and above a physical base to commit to the theory. Therefore, Noë's approach has the major advantage of fitting physicalism (even if there is no local supervenience on neurophysiological activity, it appears that there is global supervenience relative to the whole environment where the organism is embedded[16]) while doing justice to intuitions that are contrary to reductionism. This is reassuring because so much evidence suggests that physicalism is a much better-behaved metaphysics than the dualist alternative. At present there is no better way of minimizing conceptual and empirical problems.[17]

Noë uses perceptual plasticity, the phenomenon revealed by the ferret experiments above, to positively support his thesis. The argument involves the introduction of a device by engineer and psychologist Paul Bach-y-Rita to help the visually challenged, or as Noë rather bluntly puts it, "enable blind people to see (p. 56)."Bach-y-Rita exploited the idea that "the eyes are a channel for getting information to the nervous system" to invent a substitute that can provide the same kind stimulus. A camera was connected to vibrators on the subjects' thighs or abdomen. Visual input from the camera caused the vibrators to stimulate the subject's skin. So a given pattern of visual information would correlate with a specific pattern of vibration. These vibrations, according to Noë, generate activity in the same brain structure (the somatosensory cortex) that coordinates ordinary vibrations. Yet, the result is not a new way of "touching with a camera" (again, note the analogy with the ferret experiment); it is a renewed ability to see. Bach-y-Rita's subjects could discriminate the features of objects in a fair distance just like a seeing person would. Interestingly, they were able to coordinate their movements well enough to hit a Ping-Pong ball. All it took was a few hours of getting used to the device (it would seem it is not more widespread as a therapeutic device because of its sheer size) (pp. 56-57).

So here is the main lesson to be drawn: we need plasticity to explain the sensory substitution phenomenon. This is so because there is not enough time for the "full-grown and therefore relatively nonplastic adults" to rewire their brains (p. 58). So there is nothing intrinsic in the supposed "touch area of the brain" that makes it process and represent tactile stimuli. All it takes for it to become a vision enabler is getting visual stimuli. This suggests brain structures are not the key to understand perception, visual or otherwise. Bach-y-Rita's device can make blind people see because it enables them to adjust their actions to stimuli just like a seeing person. Stimulation changes very specifically as the subject moves around. Occlusion cuts off the subject from stimuli and approaching an object results in improved resolution. Turning the camera off means contact with distant things ends. When the subject manages to master the skills that enable them to interact with the world like a "normal" person does, he sees again (pp. 63-64).

The remaining sensory modalities are individuated by sets of laws that are unique to each of them. Consider auditory sensorimotor contingencies: eye movements or blinks make no difference to them, whereas head rotations do (when we move our heads

[12] *Action in perception*, p. 84.
[13] Idem, p. 83.
[14] Idem, pp. 79-84.
[15] Ibidem.
[16] As philosopher David Chalmers (1996, p. 33-34) writes, "B-properties supervene *locally* on A-properties if the A-properties of an *individual* determine the B-properties of that individual" while "B-properties supervene *globally* on A-properties, by contrast, if the A-facts about the entire *world* determine the B-facts: that is, if there are no two possible worlds identical with respect to their A-properties, but differing with respect to their A-properties". I gather the individual that is relevant to our consideration is the brain, while the whole organism and its acting in a given environment plays the role of a "world".

[17] See HOLLANDA 2011.

towards a sound source, we change the amplitude of the input). [18] By the same token, tactile information is not obtained from a viewpoint, and is not dependent on light sources. The relevant transformations depend on contact with the objects, that is, a particular use of our bodies. Touching allows us to perceive an object's shape when we have a sense of the movements "allowed by the object's contours" (p.61). This is another Gibson-inspired insight; the latter's work described how sensations of touch arise from "an observer who actively explores the surfaces of objects".[19]

What is the brain's role in all this? According to Noë, the brain is a key element in consciousness because it "coordinates our dealings with the environment" (p.65). Without an environment to ground such dealings, though, there is no interaction and therefore no experience. Perception is like dancing with a partner; when dancing, one moves this or that way because the partner has made a given movement. Brains are analogously connected to their environment. This implies the falsity of the neuroscientific account of a brain that generates consciousness through representational activity alone. Indeed, it is misleading to see the mind as a set of representations. The world is its own model; we do not need a map of it inside our heads because the environment is accessible to those that have the sensory motor skills described above (p.141).Again, this is a Gibsonian claim. Gibson argued that the world in which we live in provides information that is readily available. Perception typically requires no elaborate computations or symbol manipulations in addition to input (think of the problem – here seen as a pseudo-problem – of figuring out distances and depth from the retinal image).[20] This claim is supported by change blindness data. The relevant experiments show that we fail to perceive major changes in our visual environment when not attending to the fleeting elements themselves. Noë concludes that "it is untrue that we enjoy detailed, stable internal depictions of the external world" (p.142). Consequently, the search for NCCs pursued by cognitive neuroscientists is futile. The target representations are simply not there! It is about time we realized that instead of neural representations doing the job on their own, "it is the world itself, all around, that fixes the character of conscious experience" (p. 142). Gibson's admittedly radical framework[21] is thus vindicated.

Unsurprisingly, there are some gaps in Noë's recent writings on perception. Those familiar with his earlier work[22] will probably notice Noë fails to mention how his view can unify a range of phenomena from blindsight to visual agnosia to color vision (although prosthetic perception and perceptual stability are mentioned). This is a rather curious omission, since discussing the phenomena above would considerably strengthen the case for a sensorimotor approach. Another gap is the vagueness inherent to saying that the brain "coordinates our dealings with the environment" and leaving it at that. One would obviously like to know what this means exactly. Trivially, it cannot in this context mean that the brain is a representational engine, so what is it a nexus of? Further weaknesses can be found in the negative arguments against the mainstream view. It is certainly interesting to learn about the shortcomings of brain scanning techniques, but is it not premature to criticize neuroscience for not being able to see directly what is going on? Science, after all, does not necessarily depend on direct observations. It has been argued (rather persuasively, in my view) that direct observation is not even the typical situation in obtaining data for science.[23] Nobody has ever directly observed a neutrino, for example, but that does not make neutrino research less credible. It is taken quite seriously in part because we can infer the target phenomenon through its effects on things we can straightforwardly perceive (particle scientists can perceive bubble chamber photographs, for example). By the same token, cognitive neuroscientists can make inferences about representational activity in nervous systems through a range of techniques whose power is independently corroborated (but not – and this is crucial to Noë's criticism – conceptually neutral). The fact that these observations are theory-laden also shows very little, unless one is prepared to cast much of science in a suspicious light.In any case, cognitive neuroscientists can complement brain imaging evidence with novelexperimental predictions, and this has been done.[24] Another weakness on the book is Noë's portrayal of neuroscience as a science of picture-like representations (p.140). The mainstream view does not need mental snapshots. It can use vector coding, for example, to explain representation in a more abstract way.[25] Some philosophers sympathetic to the mainstream view are also aware that mental activity needs a wider environment that provides a context. Christopher Hill's account, for example, claims that representational content is determined by interaction with the environment in an evolutionary context.[26] This means Hill is quite ready to concede that it is impossible

[18] See *A sensorimotor account of vision and visual consciousness* (O'Regan e Noë 2001), p. 941.
[19] GOLDSTEIN 1981, p. 193
[20] Ibidem.
[21] Ibidem.
[22] See, for example, O'REGAN & NOË, 2001.
[23] See *Saving the phenomena* (BOGEN & WOODWARD 2001).
[24] DEHAENE & NACACCHE, 2001, p. 18-22.
[25] Vector coding is a technique that analyses representation in a quantitative, abstract way. It has been applied to face perception, the sense of taste and color vision, for example. It is thought that faces can be represented by vectors that stand for the relevant features, such as distance between the eyes and nose width. See CHURCHLAND 2002, p. 290-302.
[26] HILL, 2009, p. 148-153.

to have consciousness in a petri dish (there is no straightforward supervenience of mental properties on neurological goings-on), while holding a view where internal representations are key. Readers are also advised to compare Noë's bold perspective with that of Tyler Burge, who also develops a theory of perception that is critical of the brain-centered approach and is claimed to be biologically realistic. Unlike Noë, however, Burge goes to great lengths to nurture the idea that the mind is representational in nature.[27]

What is the main lesson to be drawn here? The main point in favor of Noë's view (as expressed in *Out of our heads*) is its concern with problems that are internal to the relevant science, but highly engaging to philosophers at the same time. Notions such as qualia and zombies have often been used in a way that is hardly constructive; it is arguably futile to look for a positive role they can play in formulating theories. Little is offered in return for the rejection of physicalism urged by writers such as David Chalmers or John Searle. More specifically, critics of physicalism owe other researchers a progressive research program that predicts new phenomena and unifies known but apparently unrelated facts.[28] Noë, however, manages to present an intriguing alternative to the mainstream theory that is built with materials outside the box of metaphysical thought experiments, qualia and zombies. This is accomplished without losing sight of typical philosophical preoccupations such as the nature of appearances and mental content. This is important for philosophy, since such problems are part of its tradition and cannot straightforwardly be taken over by purely scientific theories. Noë's work, then, can be seen as a benchmark in terms of highlighting philosophical insights.[29] More philosophers should emulate this approach. One hopes more philosophers will exploit the theoretical opportunities in the coming clash of reductionist approaches versus sensorimotor ones.

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[27] BURGE 2010
[28] See, for example HOLLANDA 2011.
[29] For more on the relevance of philosophy in the age of naturalism and physicalism, see HOLLANDA 2011.

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A Tool based Edge Server Selection Technique using Spatial Data Structure

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Abstract- Space partitioning is the process of dividing a Euclidean space into a non-overlapping regions. Kdimensional tree is such space-partitioning data structure for partitioning a Euclidean plane like the surface of earth. This paper describes a tool-based logically partitioning technique of earth surface using K-dimensional tree to segregate the edge servers over the earth surface into a non-overlapping regions for the particular Content Delivery Network. Consequently selecting an edge server based on Least Response Time lo ad balancing algorithm is introduced to improve end-user response time and fault tolerance of the host server.

Keywords: *content delivery network, K-d tree, least response time, load balancing, nearest neighbor search, spatial data structure.*

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A Tool based Edge Server Selection Technique using Spatial Data Structure

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Abstract - Space partitioning is the process of dividing a Euclidean space into a non-overlapping regions. K-dimensional tree is such space-partitioning data structure for partitioning a Euclidean plane like the surface of earth. This paper describes a tool-based logically partitioning technique of earth surface using K-dimensional tree to segregate the edge servers over the earth surface into a non-overlapping regions for the particular Content Delivery Network. Consequently selecting an edge server based on Least Response Time load balancing algorithm is introduced to improve end-user response time and fault tolerance of the host server.

Keywords: content delivery network, K-d tree, least response time, load balancing, nearest neighbor search, spatial data structure.

I. Introduction

Content Delivery Network (CDN) is a large distributed network of multiple data centers scattered over the earth surface [1] [3]. Today CDNs deliver a huge number of internet content including text, scripts and images and also on-demand streaming media files. Content providers pay CDN operators (e.g. Akamai, Mirror Image Internet etc.) for delivering the aforesaid contents to their customer to improve the overall network performance [2].

In this paper we have introduced a tool for partitioning earth surface using K-d Tree and also a closest edge server is selected based upon proposed least response time load balancing strategy.

Figure 1 : An example of Content Delivery Network over the earth surface.

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II. Background Studies

a) Content Delivery Network (CDN)

Increasing the global availability of the internet content, improving the page load time and reducing the bandwidth cost CDN edge servers are scattered over the earth surface. When users from different location are requesting for a particular web content which is algorithmically direct to the nearest edge server to achieve the goal. In this paper we have instigated a technique for partitioning earth surface using the K dimensional tree (K-d tree) and select the nearest edge server using least response time load balancing method which is discussed below.

b) K-dimensional Tree (K-d tree)

K-d Tree is space partitioning data structure for arranging coordinate points (latitude, longitude) over the earth surface. It can be sub-divided the earth surface into a non-overlapping regions [4] [5] [7]. In this context we have described an efficient edge server searching technique using K-d tree.

c) Least Response Time

The Least Response Time is a one of the most popular load balancing technique is used in this context [13] [14]. Using the aforesaid load balancing algorithm, to regulate how to dispense load among the edge servers. This paper we have used the network "ping" command to get average response time of the edge servers which are scattered over the earth surface [10].

III. Proposed Algorithm

In our proposed algorithm we have prepared an efficient tool for CDN provider which is supervising a CDN to select low latency edge server. The set of edge servers are considered as the set of coordinate points P (e.g. latitude and longitude) scattered over geographical region and here we build a K-d tree using P which is scattered over the earth surface as shown in figure 2 and logically partition the edge servers into a non-overlapping region as like figure 3 [6]. Using function kd_closestpointsearch, we have found nearest edge servers of the current location of end-user (e.g. Kolkata) [8] [9] [11]. Then we can calculate accurate network latency using "ping" command over the closest edge servers' IP address to find the minimum average latency time for delivering web content of a particular host server [10]. Executing "ping" command we get status

and result information of the edge server, if the status value is 0 means server is active otherwise 1 signifies the server is dead.

Our proposed algorithm is developed using Matlab R2012b which is described below [11] [12]. In figure 3, the black maker is depicted that the current location of end-user and the closest edge server, among different edge servers, is waiting to send the web content to the end user that is our primary challenge.

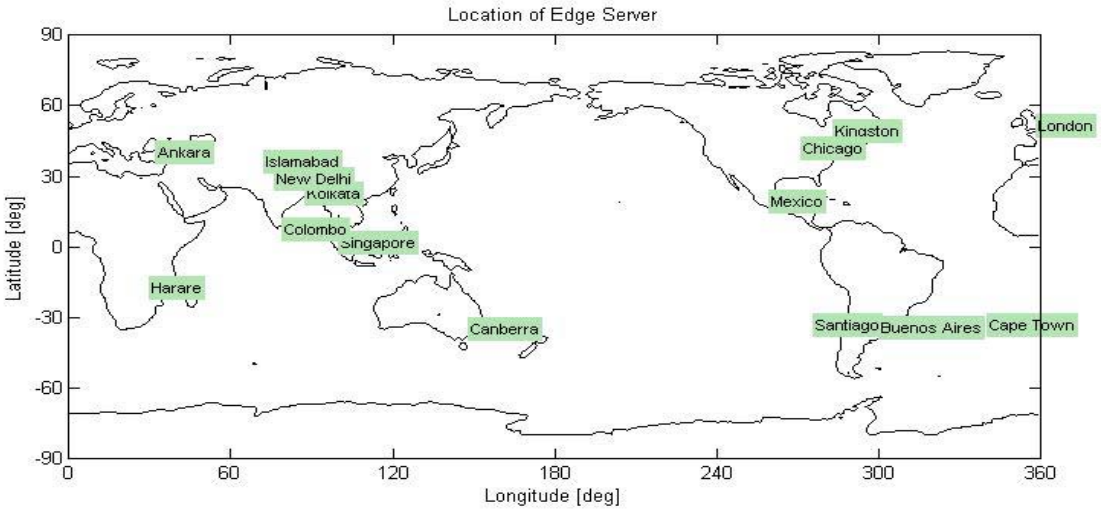

Figure 2 : Location of edge servers over the earth surface

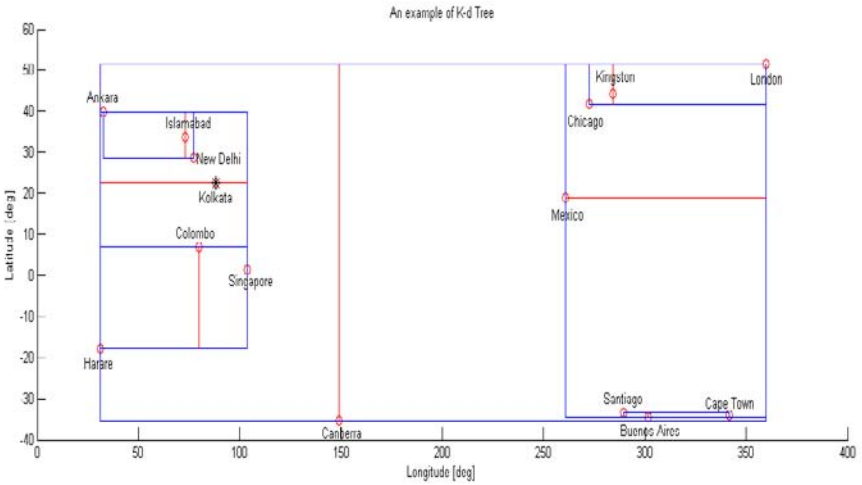

Figure 3 : Location of edge servers over the earth surface using K-d Tree

a) Algorithm for selecting edge server using K-d Tree

1. plot_stuff ←1
2. if (plot_stuff)
   2.1 close all; end
3. A set lat = {lat_1, lat_2, lat_3, …, lat_M} of latitudes are assigned in [1 × M] array
4. A set lon = {lon_1, lon_2, lon_3, …, lon_M} of longitudes are assigned in [1 × M] array
5. sz = size(lon)
6. for i ←1 to sz
   6.1 if lon(i) <= 0
      6.1.1 lon(i) = lon(i)+360
   6.2 end
7. end
8. for i ←1 to sz
   8.1 X (:, 1) = lon
   8.2 X (:, 2) = lat
9. End
10. mylon = 88.3697200 // Longitude of current location (e.g. Kolkata)
11. mylat = 22.5697200 // Latitude of current location (e.g. Kolkata)
12. if mylon <= 0
   12.1 mylon = mylon+360
13. end
14. point = [mylon mylat]

15. tree = **kd_buildtree(X, plot_stuff)** // Build K-d Tree
16. **[index_vals,vec_vals,node_number]=** **kd_closestpointsearch (tree, point)** // Finding the closet point using K-d Tree

b) Function for finding closest edge server of the end-user's current location

function [index_vals, vector_vals, final_node] = kd_closestpointsearch (tree, point, node_number)

// Initialize the global variable

1. global tree_cell
2. global safety_check
3. A set ipaddr = {ipaddr1, ipaddr2, ipaddr3, …, ipaddrM} of IP addresses in [1 × M] string array
4. if(nargin==2)
   - 4.1 safety_check=0
   - 4.2 node_number=1
   - 4.3 tree_cell=tree
   - 4.4 final_node=node_number
   - 4.5 clear tree
5. end

//if the current node is a leaf then output its results

6. if(strcmp (tree_cell (node_number).type, 'leaf'))
7. index_vals=tree_cell(node_number).index
8. vector_vals=tree_cell(node_number).nodevector
9. final_node=node_number
10. [status, result] = dos (['ping -n 1 ' ipaddr (index_vals,:)])
11. Return
12. End

// if the current node is not a leaf

//check to see if the point is to the left of the split dimension if it is to the left then recurse to the left

13. If(point(tree_cell(node_number).splitdim)<=tree_cell(node_number).splitval)
    - 13.1 if (isempty (tree_cell (node_number).left))

// in case the left node is empty, then output current results

- 13.1.1 index_vals =tree_cell (node_number).index
- 13.1.2 vector_vals =tree_cell (node_number).nodevector
- 13.1.3 final_node=node_number;
- 13.1.4 [status, result] = dos (['ping -n 1 ' ipaddr (index_vals,:)])
- 13.2 Return

14. else
    - 14.1 index_vals=tree_cell (node_number).index
    - 14.2 vector_vals =tree_cell (node_number).nodevector
    - 14.3 final_node=node_number
    - 14.4 [status, result] = dos (['ping -n 1 ' ipaddr (index_vals,:)])
    - 14.5 [index_vals, vector_vals, final_node] =kd_closestpointsearch(0,point,tree_cell(node_number).left)
    - 14.6 End

15. else

// as the point is to the right of the split dimension recurse to the right

16. if (isempty(tree_cell(node_number).left))

// In case the left node is empty, then output current results

- 16.1 index_vals=tree_cell(node_number).index
- 16.2 vector_vals =tree_cell (node_number).nodevector
- 16.3 final_node=node_number
- 16.4 [status, result] = dos (['ping -n 1 ' ipaddr (index_vals,:)])
- 16.5 Return

17. else
    - 17.1 index_vals=tree_cell (node_number).index
    - 17.2 vector_vals =tree_cell (node_number).nodevector
    - 17.3 final_node=node_number
    - 17.4 [status, result] = dos (['ping -n 1 ' ipaddr (index_vals,:)])
    - 17.5 [index_vals, vector_vals, final_node] =kd_closestpointsearch(0,point,tree_cell(node_number).right);
18. end
19. end

IV. Simulation Analysis

Step 1 : Latitude and Longitude value of different edge servers are assigned in lat and lon array variables, which are enlisted in table 1 and negative value of longitude are transformed by adding 360° which are listed in table 2.

Table 1 : Latitude and Longitude of different edge servers over the earth surface

Location of edge server	Latitude	Longitude
Kolkata	22.5667°N	88.3667°E
Singapore	1.3000°N	103.8000°E
Colombo	6.9344°N	79.8428°E
London	51.5072°N	0.1275°W
Chicago	41.8819°N	87.6278°W
New Delhi	28.6139°N	77.2089°E
Ankara	39.9300°N	32.8600°E
Islamabad	33.7167°N	73.0667°E
Santiago	33.4500°S	70.6667°W
Mexico	19.000°N	99.1333°W
Kingston	44.2333°N	75.6919°W
Buenos Aires	34.6033°S	58.3817°W
Harare	17.8639°S	31.0297°E
Cape Town	33.9253°S	18.4239°E
Canberra	35.3075°S	149.1244°E

Table 2 : Latitude and Modified Longitude of different edge servers over the earth surface

Location of Edge Servers	Latitude	Longitude	Modified Longitude
Kolkata	22.5667	88.3667	88.3667
Singapore	1.3000	103.8000	103.8000
Colombo	6.9344	79.8428	79.8428
London	51.5072	-0.1275	359.8725
Chicago	41.8819	-87.6278	272.3722
New Delhi	28.6139	77.2089	77.2089
Ankara	39.9300	32.8600	32.8600
Islamabad	33.7167	73.0667	73.0667
Santiago	-33.4500	-70.6667	289.3333
Mexico	19.0000	-99.1333	260.8667
Kingston	44.2333	-75.6919	284.3081
Buenos Aires	-34.6033	-58.3817	301.6183
Harare	-17.8639	31.0297	31.0297
Cape Town	-33.9253	-18.4239	341.5761
Canberra	-35.3075	149.1244	149.1244

Table 3 : IP Address and Domain name of different edge servers over the earth surface

Location of Edge Servers	IP Address	Domain Name
Kolkata	203.197.118.81	www.jaduniv.edu.in
Singapore	137.132.21.27	www.nus.edu.sg
Colombo	192.248.17.88	www.cmb.ac.lk
London	212.113.11.22	www.lse.ac.uk
Chicago	198.101.129.15	www.uchicago.edu
New Delhi	103.27.9.20	www.du.ac.in
Ankara	80.251.40.153	www.ankara.edu.tr
Islamabad	61.5.158.124	www.islamabadairport.com.pk
Santiago	158.170.64.116	www.udesantiago.cl
Mexico	128.123.3.2	www.nmsu.edu
Kingston	130.15.126.136	www.queensu.ca
Buenos Aires	190.224.163.234	www.buenosairesherald.com
Harare	196.201.17.237	www.caaz.co.zw
Cape Town	41.72.141.237	www.capetown.travel
Canberra	137.92.97.88	www.canberra.edu.au

Table 4 : Status information of edge server and Average Network Latency time of closest edge server

Location of Edge Servers	IP Address	Status	Average time(ms)
Canberra	137.92.97.88	Dead	Request timed out
Kolkata	203.197.118.81	Active	260
Colombo	192.248.17.88	Active	Destinationhost unreachable
Singapore	137.132.21.27	Active	238

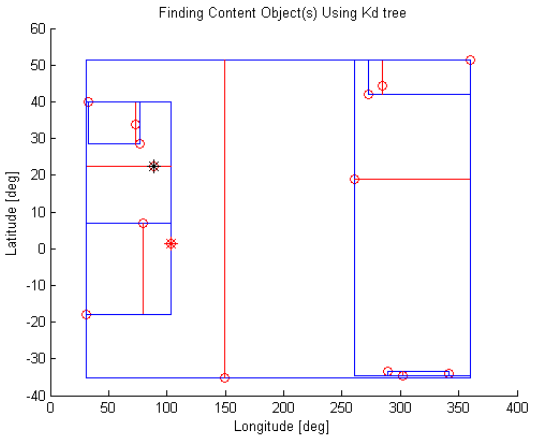

Figure 4 : Nearest edge server selection by our proposed methodology, example Selected edge server Singapore(Red Marker) & User's current location Kolkata (Black Marker)

Step 2 : The IP Address of different location of edge servers are assigned in ipaddr variables and the IP Address of edge servers along with domain names are listed in table 3.

Step 3 : The edge servers are decomposed using K-d tree as shown in figure 3.

Step 4 : Using kd_closestpointsearch function we have search closest edge server of the current location of end-user and consequently find out the accurate network latency time using "ping" command.

Step 5 : The connection is established between least average response time active edge server located at Singapore and end-user from Kolkata for sending the web content as shown in figure 4.

V. Conclusion

Our proposed tool and simulation results proclaim minimum network latency and minimum packet loss in selection of closest edge server over the earth surface. In this paper we have used K-d tree algorithm for decomposing the earth surface. Usage of kd_closestpointsearch method helps us to find the nearest edge server of the end-user. Our proposed tool can be used in wireless network and wired network for delivering the web content efficiently to improve the throughput of total network.

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Location Identification and Driver Safety System in VANETs

By S. Shanmugam
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Abstract- Vehicular Ad-hoc Networks (VANETs) are major popular wireless environment for Intelligence Transport Systems (ITS). This paper concentrates on Location Identification and Driver Safety (LIDS). Location identification is mapping out by using RFID (Radio Frequency Identification) technology to recognize the current location and also corresponding surrounded areas. The additional feature to be included is to control the speed of vehicle, when ever vehicle crosses school and hospital zones. For driver safety can be carried out using grip force sensor and eye-ball sensor. Driver's drowsiness is detected by the sensors and alerts the buzzer and stops when ever driver comes to normal state and pressing reset button. The complete system is controlled by an effectual low cost version of 8051 microcontroller (AT89S52). On the whole, LIDS suits well for safety vehicle system. The implementation results show better performance than already existing methods.

Keywords: VANET, RFID, LIDS, AT89S52.

GJCST-G Classification: C.2

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Keywords: VANET, RFID, LIDS, AT89S52.

I. Introduction

Nowadays, vehicles are increased heavily and drivers, faces many problems in location identification and safety while driving vehicles. Mostly all the vehicle consists of GPS based navigation systems to identify the direction and way of path. But GPS signals are not available in tunnels, airports etc. For this, we substitute an RFID based location identification system to get the information continuously without break up.

The driver safety is built-up using wireless and sensor technologies [1]. RFID is rated as most promising transportation location system in VANETs, and other applied areas. Alternatively it can also be used to slow down the speed of vehicles by using Electronic Control Unit (ECU) in the place of school zones. 8051AT89S52 is used, since it is low cost when compared with 8051AT89C51. The car navigation and drowsiness detection system consists of three modules: RFID based Location Identification, Eye-ball detection, Hand pressure detection. RFID technology is used for drivers to get an automatic navigation guidance to identify the places and surrounding areas, and slows down the vehicle when school zones and speed breakers are detected. Eye-ball sensor are used to detect the sleepy state of driver by using NIR (Near infrared) sensor placed In spectacles to sense the eye-blink movement. If the blink is not debuted, sensor sends a signal to the microcontroller and buzzer turns on automatically, until driver presses reset button. Hand pressure sensors are used in this system which helps to detect the driver fatigue and drowsiness detection by detecting the hand pressure and force that is applied on the steering of a vehicle.

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II. Related Works

Our work is most likely related to two specific fields are Navigation assistance and Driver's drowsiness detection in VANET's. The current Navigation assistance system is obtaining information through GPS based devices installed in vehicles. But in practice, GPS not provided the exact information due to its low frequency positioning. And also GPS doesn't provide information about lane change direction, zones identification and the traffic updates. By using GPS signals are not available in tunnels, airports etc.

Some of the research approaches presented in this paper was previously obtained [4], [6].This paper extends on those papers by providing:

- A motivating example for using the RFID technology to Navigation Assistance for VANETs.
- By using wei cheng et.al [4] proposed RFID-ANS method in our system, we get the exact information through RFID.
- Lane Level information and zones identification are adding advantages to our paper.
- By rewriting the tag information extended up to 128 Kbytes.

The RFID system consists of RFID tags and Readers. Read collision problem is mainly occurs while reading the tags when the vehicles moving fast [7], [9]. In our approach read collision is not possible and our design approach guarantee the RFID reader and tags are one-to-one coupling in an unauthorized areas. In the existing approaches for RFID in VANET's by fixing reader [8] on stationary and tags are deployed in vehicles. For example E-ZPass [11] using this method to collect the toll fee collection. Our approach is to deploy RFID in VANETs by fixing RFID tags on roads and RFID reader by placing in the bumper of vehicle for reading the tags accurately. The road beacon system, proposed [10], by using RFID tags that serves the traffic updates and road information. The numbers of major vehicle accidents are increasing day-to-day life because

of driver alertness and drowsiness. For this we make a driver safety system to monitor the physical actions of driver.

Drowsiness detection mainly classified into ways

- Sensing of physiological characteristics.
- Monitoring the response from a driver.

We mainly concentrate on physiological actions of drivers by sensing the eye-blinking movement and the steering grip pressure. In our method, using a passive infrared sensor that is fixed on the spectacles of the driver to detect the eye-blinking. This method will immediately responds to the controller and makes alert to driver when there is no eye-blinking. The time delay fixed for IR sensors is "1" second or above to obtain a "blink event" rather than "Normal eye blinking". The driver operation is carried out by detecting the steering wheel movement of the driver. By using distributed sensor that are fixed like a wire winding on the steering to identify the pressure to state a driver action

III. System Design

RFID system plays a major role to identifying places, zones and its surrounding areas. The main component of the RFID system is the reader and the tag. The RFID tags are separated into active and passive. Passive tags are cheaper because, it don't need any external power source. The RFID reader is located in bumper of the vehicle and the passive tags are deployed on the roads. When the vehicles enter near the corresponding places before 50 meters the reader detects and display the corresponding places [5]. If the vehicle enters near the school zone the corresponding tag will sends information to microcontroller and the relay slows down the vehicle speed until the same tag identified after the school zone ends.

But it acts as a secondary control rather than driver control. The eye-blink sensor is to identify the eye movement of the driver and alerts when the eye closed for 4 seconds continuously. The near infrared waves used by sensors that are placed on the corner of the spectacle. It senses continuously and sends an "Eye blink debuted" message when it receives signal, Otherwise LED displays "Driver slept" message and buzzer turns on automatically until driver presses reset button.

The pressure sensor is to detect the driver fatigue by using a chain of sensor units, each of them providing with capacitive sensing elements that measures grip force and hand position on the steering. In this system sensors will sends digital signal "1" and LED displays "Driver Normal" message when a normal pressure is present in the steering. If there is no pressure is present in the steering, it sends a digital signal "0" and "Grip lost" message is displayed and the buzzer turned on automatically until a normal pressure is applied on the steering.

a) *Prototype Scheme*

Figure 1 : shows the prototype of location identification and driver safety

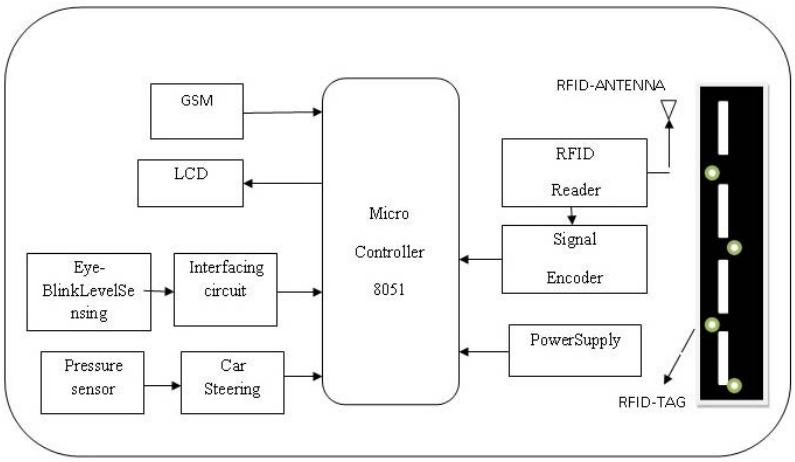

Figure 1 : Prototype of LIDS

b) *RFID*

RFID is the technology, used in this system to update the location and zones. RFID system consists of RFID tags and RFID readers. Each RFID tags store the unique information, and RFID reader access the tag to collect the information through the wireless communication medium. In this system passive tags are used, hence there is no external power supply needed because it gets from reader itself.

c) *Eye Blink Sensor*

The purpose of passive IR sensor is used to identify the driver sleepy state. Compared to

microwaves, the near infrared waves are passed to identify the static field depend on varying the amplitude and pressure. Based upon the oscillator frequency peak will vary depends upon blinking effect of eye movement. The DC output will vary depend upon the frequency, using the comparator switching effect will differs when eye lid is blinking and closed. The passive IR sensor is highly effective and doesn't cause any harmful effects to the human eye.

d) Pressure Sensor

The purpose of pressure sensor is to identify the driver fatigue detection. Compared to ultrasonic sensor, the circulated sensor identifies the measurement of grip force and hand position on the steering. The grip sensor will produces both digital and analog output to identify the state. The pressure sensor operates at 30 kHz frequency of 16 units based on capacitive sensing.

e) 8051 Microcontroller

AT89S52 series controller is an 8-bit controller. It is based on the architecture of highly optimized and is a very effective controller of embedded systems. It has an inbuilt 8- channel ADC. The memory space is the CODE segment, which executes the program, resides up to 64K. It is easily reprogramed and suitable for many embedded systems.

IV. System Implementation

Figure 2 : shows overall system design of LIDS

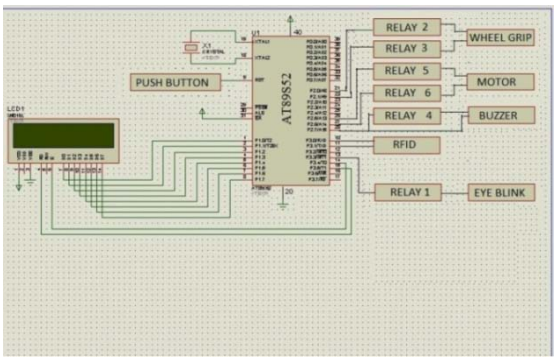

Figure 2 : Overall system design

The design and implementation of Location Identification and driver safety is done through the RFID and safety sensors. RFID consists of tag and reader. RFID reader is placed in the bumper of vehicle and passive tags are placed in the roads. The RFID tag has the EIC (Electronic Identification Code) which is unique. The EIC code is predefined in the controller is written in embedded c. The tag details are predefined in microcontroller. The driver identifies the places and zones according to message as per RFID [6] tag used. Earlier this process is used for automotive vehicles present in industries to carry goods to reach the destination [4]. The eye-blink module has input and output pin is connected to "P34" pin of the microcontroller. If any signals didn't received by the eye-blink sensor its sends information to the microcontroller and buzzer starts automatically. The pressure sensor [5] module has input and output pins and the output pin is connected to "P20" pin and "P21" of the microcontroller. The RFID Tx is connected to "P30" pin and "P31" is connected with controller port pin. RFID reader is used to interrogate a RFID tag. The reader has an antenna that emits radio waves, the tag responds the data to the reader and LCD displays the particular data. The first eight pins are connected to the LCD display to display the segments. The DC motor is connected to the "P25", "P26" pin of microcontroller to reduce the speed of vehicle by communicating with RFID reader when school zone is identified. Power supply is connected to 40^{th} pin of microcontroller and 20^{th} to ground. This gives the overall system design.

V. Results and Discussion

Figure 3 : shows the prototype of location identification and driver safety using RFID, eye-blink sensor and pressure sensor. This process is used to identify the location and driver safety during night hours. It is a self identifying device in a vehicle. In this method the RFID tags, RFID reader, Eye-blink sensor, Pressure sensor are used. *Figure 4 :* shows the identification and location of zones through reading of RFID tags. Each RFID tag has EIC code. The EIC code has electronic identification code. From the RFID tags, fixed on roads the reader identifies the location through antenna. This result states the identification of location and zones. The RFID reader placed in the bumper of vehicle and tags are placed in roads. *Figure 5 :* shows that the vehicle starts identifying the location based on the information stored in the RFID tags. Each unique electronic code present in tags is predefined in the microcontroller. In these electronic identification code, there is a predefined set that indicates the information whether the vehicle enters into school zone or not. If vehicle enters school zone prototype as shown in fig. 6, the vehicle speed is automatically controlled (reducer), when enters into school zone and comes back to normal when school zone ends.

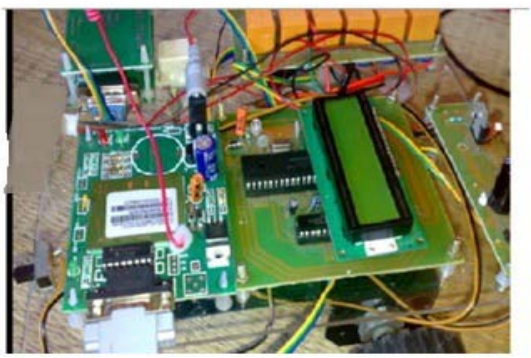

Figure 3 : prototype for location identification and driver safety

Figure 4 : prototype for location identification

Figure 5 : prototype for school zone identification

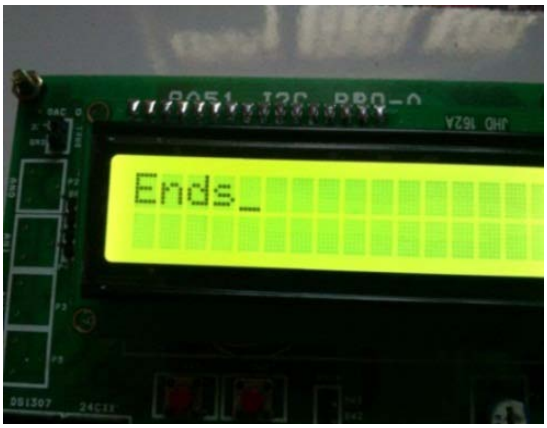

Figure 6 : prototype for school zone ends

After reading this tag school zone ends the vehicle turns into normal.

Figure 7 : prototype for identify eye-blink

Fig. 7 explains about the driver normal if the eye-blink is found. Fig. 8 and 9 shows the eye-blink not found and the driver slept message displayed, the buzzer turns on automatically until driver presses reset button.

Figure 8 : prototype for driver monitoring

Figure 9 : prototype for driver slept

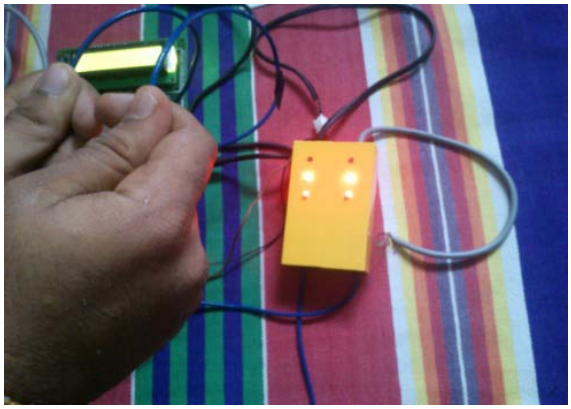

Figure 10 : prototype for grip sensor

Figure 11 : prototype for grip lost

Fig. 10 shows the grip sensor which will monitor grip pressure of the driver and leaves normally. Fig. 11 shows the prototype of grip lost and the buzzer turns on automatically until a particular pressure is present.

VI. Conclusion

This work resolves the challenges in VANET, to identify the location and driver safety during driving vehicles. The experimental outcomes are very effective and can be easily carry out in real time. This can be extended by combining all those RFID and safety sensors to bring an effective communication and by GSM to update the traffic information. On the complete, this method proves to be very effective in Vehicular ad-hoc network environment.

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After nomination of your institution as "Institutional Fellow" and constantly functioning successfully for one year, we can consider giving recognition to your institute to function as Regional/Zonal office on our behalf.
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Note :

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- In future, if the board feels the necessity to change any board member, the same can be done with the consent of the chairperson along with anyone board member without our approval.
- In case, the chairperson needs to be replaced then consent of 2/3rd board members are required and they are also required to jointly pass the resolution copy of which should be sent to us. In such case, it will be compulsory to obtain our approval before replacement.
- In case of "Difference of Opinion [if any]" among the Board members, our decision will be final and binding to everyone.

"

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1. General,

2. Ethical Guidelines,

3. Submission of Manuscripts,

4. Manuscript's Category,

5. Structure and Format of Manuscript,

6. After Acceptance.

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27. Refresh your mind after intervals: Try to give rest to your mind by listening to soft music or by sleeping in intervals. This will also improve your memory.

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34. After conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium though which your research is going to be in print to the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects in your research.

Informal Guidelines of Research Paper Writing

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form, which is presented in the guidelines using the template.
- Please note the criterion for grading the final paper by peer-reviewers.

Final Points:

A purpose of organizing a research paper is to let people to interpret your effort selectively. The journal requires the following sections, submitted in the order listed, each section to start on a new page.

The introduction will be compiled from reference matter and will reflect the design processes or outline of basis that direct you to make study. As you will carry out the process of study, the method and process section will be constructed as like that. The result segment will show related statistics in nearly sequential order and will direct the reviewers next to the similar intellectual paths throughout the data that you took to carry out your study. The discussion section will provide understanding of the data and projections as to the implication of the results. The use of good quality references all through the paper will give the effort trustworthiness by representing an alertness of prior workings.

Writing a research paper is not an easy job no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record keeping are the only means to make straightforward the progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear

· Adhere to recommended page limits

Mistakes to evade

- Insertion a title at the foot of a page with the subsequent text on the next page
- Separating a table/chart or figure - impound each figure/table to a single page
- Submitting a manuscript with pages out of sequence

In every sections of your document

· Use standard writing style including articles ("a", "the," etc.)

· Keep on paying attention on the research topic of the paper

· Use paragraphs to split each significant point (excluding for the abstract)

· Align the primary line of each section

· Present your points in sound order

· Use present tense to report well accepted

· Use past tense to describe specific results

· Shun familiar wording, don't address the reviewer directly, and don't use slang, slang language, or superlatives

· Shun use of extra pictures - include only those figures essential to presenting results

Title Page:

Choose a revealing title. It should be short. It should not have non-standard acronyms or abbreviations. It should not exceed two printed lines. It should include the name(s) and address (es) of all authors.

Abstract:

The summary should be two hundred words or less. It should briefly and clearly explain the key findings reported in the manuscript--must have precise statistics. It should not have abnormal acronyms or abbreviations. It should be logical in itself. Shun citing references at this point.

An abstract is a brief distinct paragraph summary of finished work or work in development. In a minute or less a reviewer can be taught the foundation behind the study, common approach to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Yet, use comprehensive sentences and do not let go readability for briefness. You can maintain it succinct by phrasing sentences so that they provide more than lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study, with the subsequent elements in any summary. Try to maintain the initial two items to no more than one ruling each.

- Reason of the study - theory, overall issue, purpose
- Fundamental goal
- To the point depiction of the research
- Consequences, including definite statistics - if the consequences are quantitative in nature, account quantitative data; results of any numerical analysis should be reported
- Significant conclusions or questions that track from the research(es)

Approach:

- Single section, and succinct
- As a outline of job done, it is always written in past tense
- A conceptual should situate on its own, and not submit to any other part of the paper such as a form or table
- Center on shortening results - bound background information to a verdict or two, if completely necessary
- What you account in an conceptual must be regular with what you reported in the manuscript
- Exact spelling, clearness of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else

Introduction:

The **Introduction** should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable to comprehend and calculate the purpose of your study without having to submit to other works. The basis for the study should be offered. Give most important references but shun difficult to make a comprehensive appraisal of the topic. In the introduction, describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will have no attention in your result. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here. Following approach can create a valuable beginning:

- Explain the value (significance) of the study
- Shield the model - why did you employ this particular system or method? What is its compensation? You strength remark on its appropriateness from a abstract point of vision as well as point out sensible reasons for using it.
- Present a justification. Status your particular theory (es) or aim(s), and describe the logic that led you to choose them.
- Very for a short time explain the tentative propose and how it skilled the declared objectives.

Approach:

- Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done.
- Sort out your thoughts; manufacture one key point with every section. If you make the four points listed above, you will need a least of four paragraphs.

- Present surroundings information only as desirable in order hold up a situation. The reviewer does not desire to read the whole thing you know about a topic.
- Shape the theory/purpose specifically - do not take a broad view.
- As always, give awareness to spelling, simplicity and correctness of sentences and phrases.

Procedures (Methods and Materials):

This part is supposed to be the easiest to carve if you have good skills. A sound written Procedures segment allows a capable scientist to replacement your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt for the least amount of information that would permit another capable scientist to spare your outcome but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section. When a technique is used that has been well described in another object, mention the specific item describing a way but draw the basic principle while stating the situation. The purpose is to text all particular resources and broad procedures, so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step by step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

- Explain materials individually only if the study is so complex that it saves liberty this way.
- Embrace particular materials, and any tools or provisions that are not frequently found in laboratories.
- Do not take in frequently found.
- If use of a definite type of tools.
- Materials may be reported in a part section or else they may be recognized along with your measures.

Methods:

- Report the method (not particulars of each process that engaged the same methodology)
- Describe the method entirely
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures
- Simplify - details how procedures were completed not how they were exclusively performed on a particular day.
- If well known procedures were used, account the procedure by name, possibly with reference, and that's all.

Approach:

- It is embarrassed or not possible to use vigorous voice when documenting methods with no using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result when script up the methods most authors use third person passive voice.
- Use standard style in this and in every other part of the paper - avoid familiar lists, and use full sentences.

What to keep away from

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings - save it for the argument.
- Leave out information that is immaterial to a third party.

Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part a entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Carry on to be to the point, by means of statistics and tables, if suitable, to present consequences most efficiently.You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.

Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation an exacting study.
- Explain results of control experiments and comprise remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or in manuscript form.

What to stay away from

- Do not discuss or infer your outcome, report surroundings information, or try to explain anything.
- Not at all, take in raw data or intermediate calculations in a research manuscript.
- Do not present the similar data more than once.
- Manuscript should complement any figures or tables, not duplicate the identical information.
- Never confuse figures with tables - there is a difference.

Approach

- As forever, use past tense when you submit to your results, and put the whole thing in a reasonable order.
- Put figures and tables, appropriately numbered, in order at the end of the report
- If you desire, you may place your figures and tables properly within the text of your results part.

Figures and tables

- If you put figures and tables at the end of the details, make certain that they are visibly distinguished from any attach appendix materials, such as raw facts
- Despite of position, each figure must be numbered one after the other and complete with subtitle
- In spite of position, each table must be titled, numbered one after the other and complete with heading
- All figure and table must be adequately complete that it could situate on its own, divide from text

Discussion:

The Discussion is expected the trickiest segment to write and describe. A lot of papers submitted for journal are discarded based on problems with the Discussion. There is no head of state for how long a argument should be. Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implication of the study. The purpose here is to offer an understanding of your results and hold up for all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of result should be visibly described. Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved with prospect, and let it drop at that.

- Make a decision if each premise is supported, discarded, or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."
- Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work
- You may propose future guidelines, such as how the experiment might be personalized to accomplish a new idea.
- Give details all of your remarks as much as possible, focus on mechanisms.
- Make a decision if the tentative design sufficiently addressed the theory, and whether or not it was correctly restricted.
- Try to present substitute explanations if sensible alternatives be present.
- One research will not counter an overall question, so maintain the large picture in mind, where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

- When you refer to information, differentiate data generated by your own studies from available information
- Submit to work done by specific persons (including you) in past tense.
- Submit to generally acknowledged facts and main beliefs in present tense.

Please carefully note down following rules and regulation before submitting your Research Paper to Global Journals Inc. (US):

Segment Draft and Final Research Paper: You have to strictly follow the template of research paper. If it is not done your paper may get rejected.

- The **major constraint** is that you must independently make all content, tables, graphs, and facts that are offered in the paper. You must write each part of the paper wholly on your own. The Peer-reviewers need to identify your own perceptive of the concepts in your own terms. NEVER extract straight from any foundation, and never rephrase someone else's analysis.

- Do not give permission to anyone else to "PROOFREAD" your manuscript.

- Methods to avoid Plagiarism is applied by us on every paper, if found guilty, you will be blacklisted by all of our collaborated research groups, your institution will be informed for this and strict legal actions will be taken immediately.)
- To guard yourself and others from possible illegal use please do not permit anyone right to use to your paper and files.

Criterion for Grading a Research Paper (Compilation) by Global Journals Inc. (US)

Please note that following table is only a Grading of "Paper Compilation" and not on "Performed/Stated Research" whose grading solely depends on Individual Assigned Peer Reviewer and Editorial Board Member. These can be available only on request and after decision of Paper. This report will be the property of Global Journals Inc. (US).

Topics	Grades		
	A-B	**C-D**	**E-F**
Abstract	Clear and concise with appropriate content, Correct format. 200 words or below	Unclear summary and no specific data, Incorrect form Above 200 words	No specific data with ambiguous information Above 250 words
Introduction	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
Result	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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