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WIRELESS V2V COMMUNICATIONS OF UNMANNED VEHICLES WITH WIRELESS NETWORK TRACKING ANDEMP CHARGER OF TESLA COIL

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ABSTRACT

Wireless communication systems that include unmanned vehicles promise to provide cost effective wireless connectivity for devices without infrastructure coverage Compared to terrestrial communications on high altitude platforms on demand wireless systems with low altitude UVs are in general faster deploy and more flexibly reconfigured, likely to have better communication channels due to the presence short range line of sight links However the utilization of highly mobile , energy constrained UVs for wireless communications also introduces new challenges. In Vehicle collision avoidance system is automobile system a safety system that is designed to reduce the chances of collision to achieve this we use V2V communication and vehicle to infrastructure communication used to minimize the chances of the accidents In addition to this, for an Electric unmanned vehicle we use Wireless charging to charge the vehicle with the help of Tesla coil. In this article, we provide an overview of Unmanned/ Autonomous Electric Vehicle aided wireless communications introducing the basic networking architecture and main channel characteristics highlighting the key design considerations as well as the new opportunities to beexploited.

1. INTRODUCTION

With their high mobility and low cost, unmanned vehicles have found a wide range of applications in the past few decades .UV's such as car,having limited mobility and payload, are able to move in any direction as well as to stay stationary in the road. Among the various applications enabled by UVs, the use of UVs for achieving high speed wireless communications is expected to play an important role in future communication system. Adaptive communications can be jointly designed with UV Mobility control to further improve the communication performance. For example, when a UV experiences good channels with ground terminals, decides transmitting at higher rate, it can also lower its speed to sustain good wireless connectivity to transmit more data to the ground terminals.

These evident benefits make UV aided wireless communication a promising integral component of future wireless systems, which need to support more diverse applications with orders of magnitude capacity improvement over current systems. New communication protocols need to be designed taking into account the possibility of sparse and intermittent network connectivity. Another main challenge stem from the size, weight and power (SWAP) constraints of UVs which could limit their communication, computation and endurance capabilities. To tackle such issues, energy aware UV deployment and operation mechanism are needed for intelligent energy usage and replenishment. Effective interference management techniques are specifically designed for UV aided cellular coverage are needed. The objective of this article is to give a overview of UV aided wireless communications.

2. RELATEDWORK

2.1 Millimeter wave V2V communications: Distributed association and beamalignment

[1] Recently millimeter-wave bands have been postulated as a means to accommodate the foreseen extreme bandwidth demands in vehicular communications, which result from the dissemination of sensory data to nearby vehicles for enhanced environmental awareness sand improved safety level. In this work we propose a novel framework that blends together Matching Theory and Swarm Intelligence to dynamically and efficiently pair vehicles and optimize both transmission and reception beam widths. This is done by jointly considering Channel State Information(CSI) and Queue State Information(QSI) when establishing vehicle-to-vehicle (V2V) links. To validate the proposed framework, simulation results are presented and discussed where the throughput performance as well as the latency/reliability trade offs of the proposed approach a reassessed and compared to several baseline approaches recently proposed in the literature. Applications for Unmanned Aerial Vehicles (UAVs), operating in unlicensed bands, are vastly growing with the consolidation of the Internet of Things (IoT). However, those bands have become overcrowded as systems using them are continuously increasing. In this context, Cognitive Radio (CR) and spectrum sharing techniques have emerged as promising strategies to overcome the problem of spectrum scarcity in wireless networks, thus being considered as enabling technologies for the future 5G wireless networks.Initially developed for military tasks, Unmanned Aerial Vehicles (UAVs) have found various applications within the civilian domain. These applications include traffic control, border patrolling, forest fire monitoring, agriculture mapping,etc.

[1]This section elaborates on the system model for mm- Wave V2V communications, introduces the main elements that govern the cross-layer RRM policy and formulates the optimization problem that models the allocation of resources.To obtained in our study show performance gains in terms of reliability and delay up to 25% for ultra-dense vehicular

scenarios and on average 50% more paired vehicles that some of the baselines. These results shed light on the operational limits and practical feasibility of Wave bands, as a viable radio access solution for future high-rate V2V communications.

3. PROPOSEDMETHOD

This section elaborates on the system model for mm- Wave V2V communications, introduces the main elements that govern the cross-layer RRM policy and formulates the optimization problem that models the allocation of resources, V2V links and their corresponding transmitting and receiving beam widths. Proposed in the literature. The results obtained in our study show performance gains in terms of reliability and delay up to 25% for ultra-dense vehicular scenarios and on average 50% more paired vehicles that some of the baselines. These results shed light on the operational limits and practical feasibility of Wave bands, as a viable radio access solution for future high-rate V2V communications.

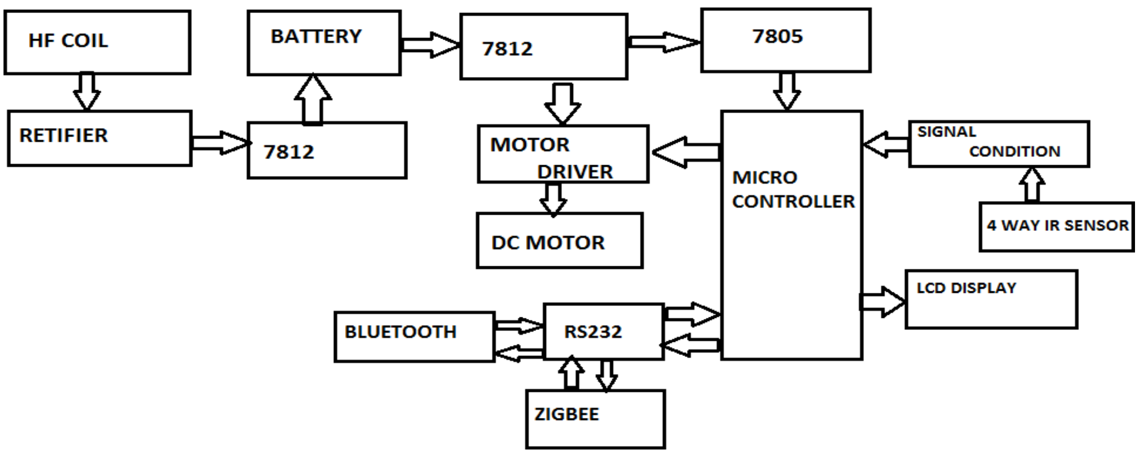

Fig 3.1 Autonomous electrical vehicle with wireless charging

Initially developed for military tasks, Unmanned Aerial Vehicles (UAVs) have found various applications within the civilian domain. These applications include traffic control, border patrolling, forest fire monitoring, agriculture mapping, etc. . Thus this new scope of UAVs operation has led to an increase not only in the use of UVs but also in their diversity. Thus being considered a key technology to meet the criticalrequirements

Advantages:

- *Fast chargingmode*
- *Highefficiency*
- *Industrial and domesticapplications*
- *ElectricVehicle*

- *Transpo*

rt Applications:

- *DomesticAppliance*

4. *RESULT ANDDISCUSSION*

Simulation results are obtained for various operating conditions using Proteus platform.

Simulation parameters used in the model. The simulation circuit diagram of proposed is shown.

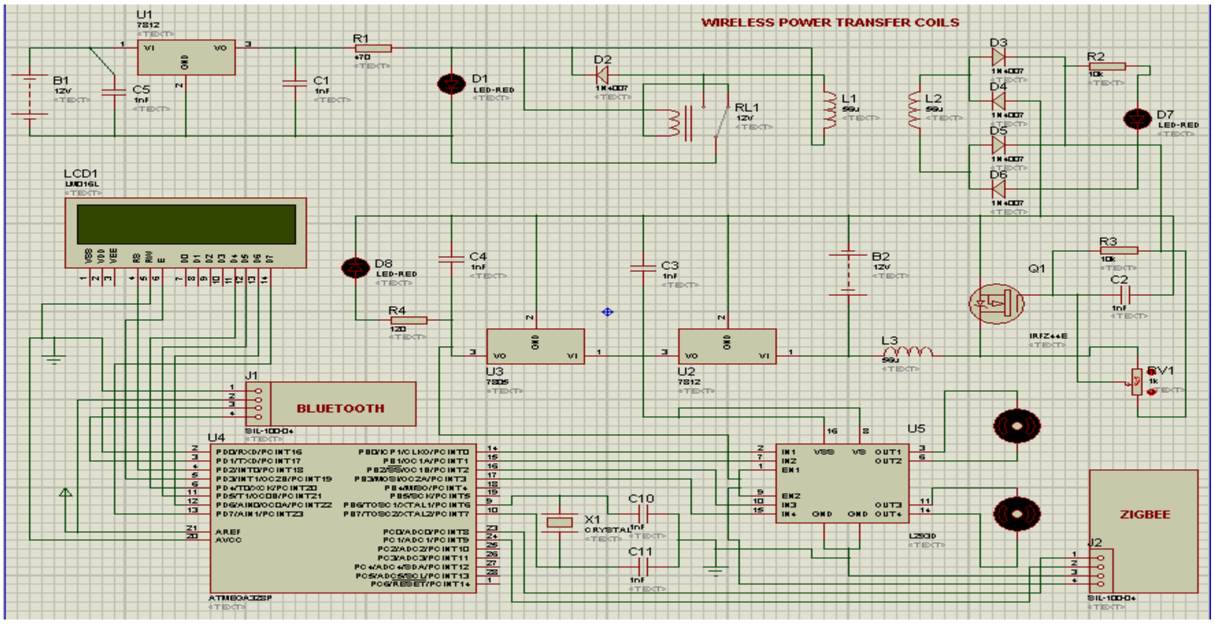

Fig 4.1 Simulation Output

5. *CONCLUSION*

Safety is considered an important concern while driving vehicles. In another hand the vehicle should be eco-friendly and it should help in maintaining the traffic flow. In this project we have designed a vehicle with technologies such as Vehicle to Vehicle Communication, wireless network tracking and wireless charging of the vehicle using Tesla coil. Vehicle to

Vehicle Communication is used to establish communication between the vehicles when it reaches a particular zone close to the vehicle. We can also get the details of the other vehicles like speed, which direction they are going to turn etc., To produce a eco-friendly car we use electrical car concept, then a problem arises in charging the vehicle. Here we use wireless charging method to charge the vehicle with the use of Tesla coil. The proposed system is given in such a way that it can ensure the safety of people and reduces the *chances of driving inconvenience. The future enhancement in this project can be a vehicle with levitating technology using themagnets.*

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