

Smart Helmet using PIC Controller

V. Priya, J.Dhanasekar, Vasumathi

Abstract : *These days head protectors that spares a huge number of life are disregarded by the bicycle riders prompts demise of numerous lives. So as to keep away from this situation we presented shrewd head protector utilizing pic controller. Signal transmission between the protective cap unit and bicycle unit is utilizing a RF transmitter and recipient unit. Giving wellbeing to an individual while riding the bicycle is our prime concern. By finishing this undertaking it will be obligatory to wear protective cap while riding. The framework what we have wanted to configuration gives answer for this issue of evasion in wearing headgear. This framework additionally gives security to the vehicle as each bicycle will have a one of a kind cap and without which an individual neglects to begin that specific bicycle. This venture incorporates a protective cap body and a coordinated electronic framework arranged in the head protector body. It is worked through a remote control system. Moreover, the parts are separated about the head protector to give even weight appropriation to advance generally speaking parity and wellbeing.*

Keywords- PIC controller, helmet.

I. INTRODUCTION

As of late caps have been made necessary, there by car crashes in India have been expanding step by step. According to Section 129 of Motor Vehicles Act, 1988 makes the mandatory use of headgear for the riders with the accompanying of guidelines of (Bureau of Indian Standards). In India shirking wearing protective cap is a criminal offense of The Motor Vehicle act 1939. Because of the shirking the rider will get rebuffed. In existence bike traveler fails to use the headgear. Thus by considering the above issues and giving importance to the rider safety our project is developed. The first step is to make the passenger to wear the headgear. If the headgear is worn then ignition will start otherwise it will remains OFF. For these we use RF sensor. The aim of this project is to make a protection system in a helmet for a good safety of bike rider. [1],[3],[5] There is a PIC controller is utilized in this venture. Signal transmission between the protective cap unit and bicycle unit is utilizing a RF transmitter and beneficiary unit. Giving security to an individual while riding the bicycle is our prime concern. By finishing this task it will be compulsory to wear cap while riding. The framework what we have intended to configuration gives answer for this issue of shirking in wearing headgear. The framework makes it obligatory for the

rider to wear head protector before beginning the vehicle. In the event that the rider neglects to do as such, at that point the vehicle can't be begun. This framework likewise gives security to the vehicle as each bicycle will have an interesting head protector and without which an individual neglects to begin that specific bicycle. This venture incorporates a head protector body and a coordinated electronic framework arranged in the cap body. It is worked through a remote control framework. The segments of the electronic framework are adequately little and tough for use in the protective cap, guaranteeing that the head protector is lightweight and sturdy. In addition, the segments are separated about the cap to give even weight conveyance to advance in general parity and security.

II. PIN DIAGRAM OF PIC 16F877

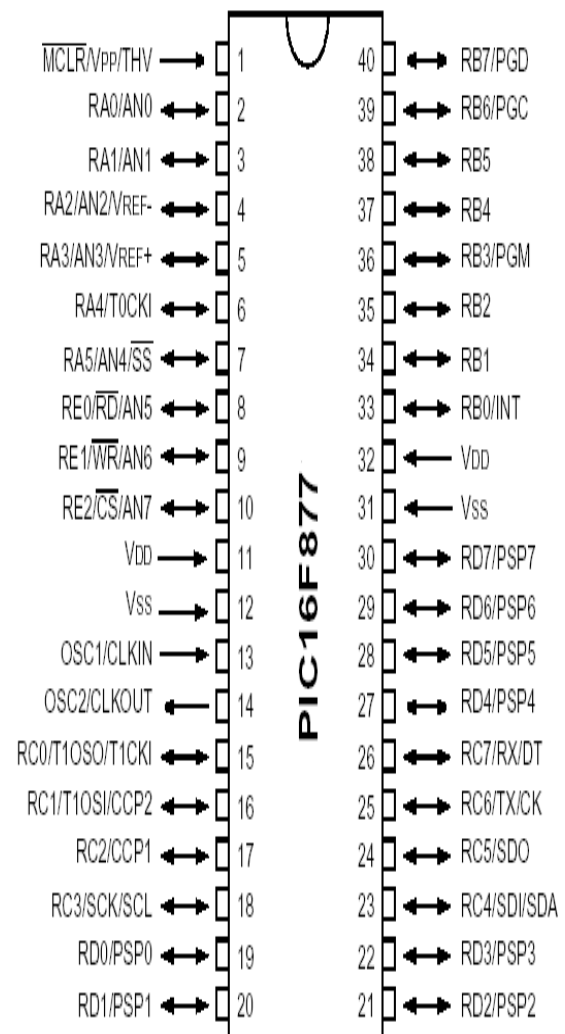


Fig 1. pin configuration of PIC

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III. CONSTRUCTION

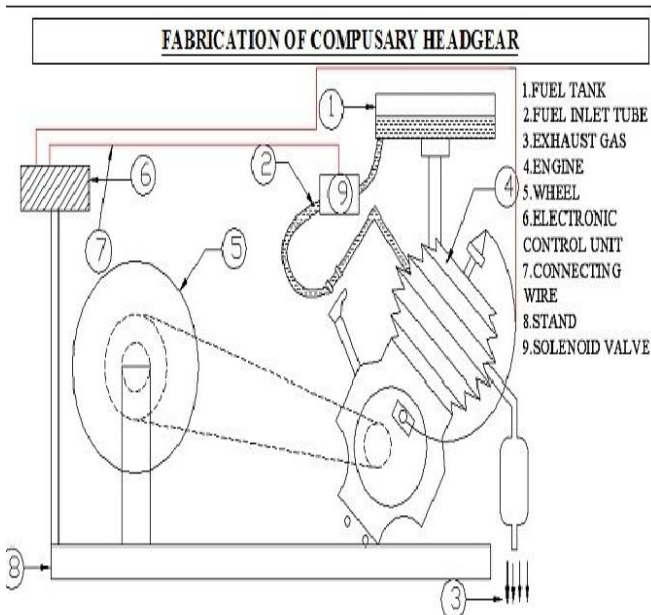


Fig 2 Construction of engine with relays and solenoid valve

IV. WORKING OF COMPULSARY HEADGEAR

The transmitter unit is fixed in the headgear of the user and a conducting element like switch is placed in it and addition battery supply is provided for the transmitter to energize while the switch is in contact with the head of the passenger.

Now the transmitter transmits the signal when the switch used is in closed format and it transmits or passes the transmission signal to the receiver unit attached in the two wheeler. [2],[4],[6]

When the receiver receives the signal from the transmitter then it makes a run of the given program and energies the relay and by energizing it the solenoid valve attached to it gets actuated.

Thus this actuation makes the fuel supply and there by the ignition of the bike starts. IF there is a removal of headgear while driving then the fuel supply will be stopped and the speed of the bike will be gradually reduced and once the receiver receives the signal from transmitter the fuel is supplied.

The diagram of Radio Frequency Transmitter is shown below .This is mainly used in transmission of signal to the receiver.

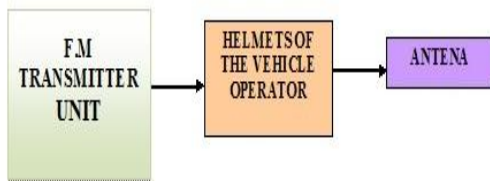


Fig 3. Transmitter Unit

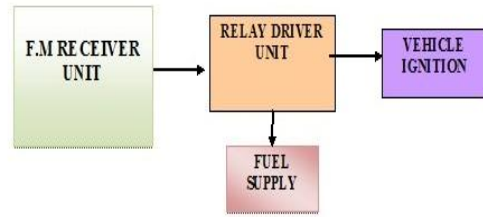


Fig 4. Receiver Unit

V. BLOCK DIAGRAM

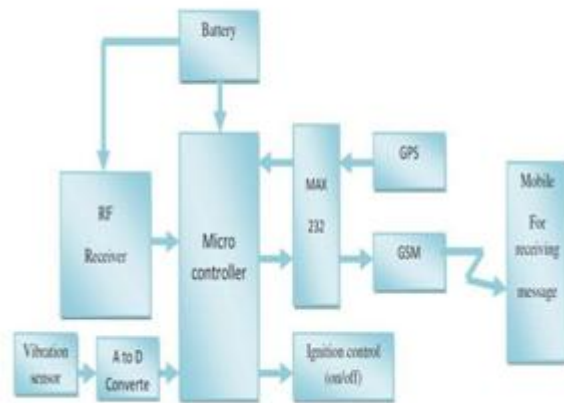


Fig 5. working of smart helmet

VI. ADVANTAGES

- Using a single transmitter can control many appliances like ignition, light, fuel supply.
- It is very economical.
- As we said earlier it is easy to control the vehicle.
- Receiving problem is restricted.
- This project provides another facility to change the transmitter and receiver.

VII. APPLICATION

- All Two wheeler applications
- Automobile manufacturing industrial applications
- In home equipments
- In robotics
- In process control fields



VIII. CONCLUSION AND FUTURESCOPE

Thus the overall goal of our project is to avoid accidents and loss of life in accidents. This compulsory headgear makes the goal to be achieved in a successful way. This is the close resemblance to real ones. The advantage of this project is clearly explained and it does not require much cost for the implementation. This project provides a low maintenance cost and quick response engine as well as motors are used. The controlling process is done in simple manner. Even though much improvement may arise in science and technology then too it is in the hands of government and the riders for the safety travel. By making some strict rules and implementing new technologies accidents can be avoided and whatever the rules are made each rider must have some responsibility by not only considering their life but also considering the life of the opposite riders too. [7],[9], [10]

Instead of using Radio Frequency Sensor, other force analysis sensors are used to increase accuracy and the time consumed can be reduced .



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