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AN INTEGRATED MODEL FOR PUBLIC SERVICE VEHICLES OVERLOAD PREVENTION BASED ON MICRO-CONTROLLER

Road transport means transportation of goods and services and people from one place to the other on roads. The form of transport most widely used by Kenyans is the "Matatu" which ferry people alongside goods. It has been reported that this mode of public transport in Kenya is at fault when it comes to issues on safety. Public Service Vehicles are designed to transit a specific weight and legalized to carry between 10 and 50 passengers depending on the category of the vehicle. They often ferry passengers and luggage in excess, in disregard to the laid out recommendation for each category. There are many rules and regulations that are there made by Kenyan government to overcome the problem of overloading but those rules are not followed by the people. When this is violated, the mass of the extra luggage and passengers compromises the handling of the vehicle and the braking system all together. This can cause fatal accident. The current systems in use have no means of detecting the weight. For the number of passengers, each vehicle has a maximum number of seats and the conductor of the vehicle checks manually to ensure that each seat is occupied. Although a vehicle could be carrying the right number of passengers it could as well be overloaded in terms of weight. Therefore this paper proposes an integrated model that will detect and prevent overloading in terms of both. To achieve the study objectives a proof of concept (POC) methodology was adopted to prove the concept of resolving the weaknesses of the existing models using a microcontroller based model. The POC focused on coming up with an integrated model that neither luggage nor passengers are in excess. In case either is exceeded, then the cutout is activated and the engine will not start.

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