PKM EDUCATIONAL TRUST@

RR INSTITUTE OF TECHNOLOGY

(Affiliated to VTU, Belagavi | approved by AICTE, New Delhi & Govt of Karnataka)

Department of Electronics and Communication engineering

"AUTOMATIC VEHICLE SPEED CONTROLLER AND AVOIDING ACCIDENT IN EXPRESSWAYS/HIGHWAYS"

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“AUTOMATIC VEHICLE SPEED CONTROLLER AND AVOIDING ACCIDENT IN EXPRESSWAYS/HIGHWAYS”

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ABSTRACT AND INTRODUCTION

- This project is aimed at limiting the speed of vehicles on expressways with respect to the lane on which the vehicle travelling in.
- This is achieved by using wireless sensors and transceivers in order to lock the engine speed using a speed governor.
- An expressway consists of three lanes in which the slow lane (leftmost lane) has a limit of 60km/h, the middle lane has a limit of 80km/h and the fast lane (rightmostlane) has a limit of 100km/h.
- According to the above speed restrictions, the engine speed governor will have pre-programmed codes which remaps the ECU to limit the speed with respective to the limits.

HARDWARE REQUIRED

RF MODULES

IR TRANSMITTER AND RECIEVER

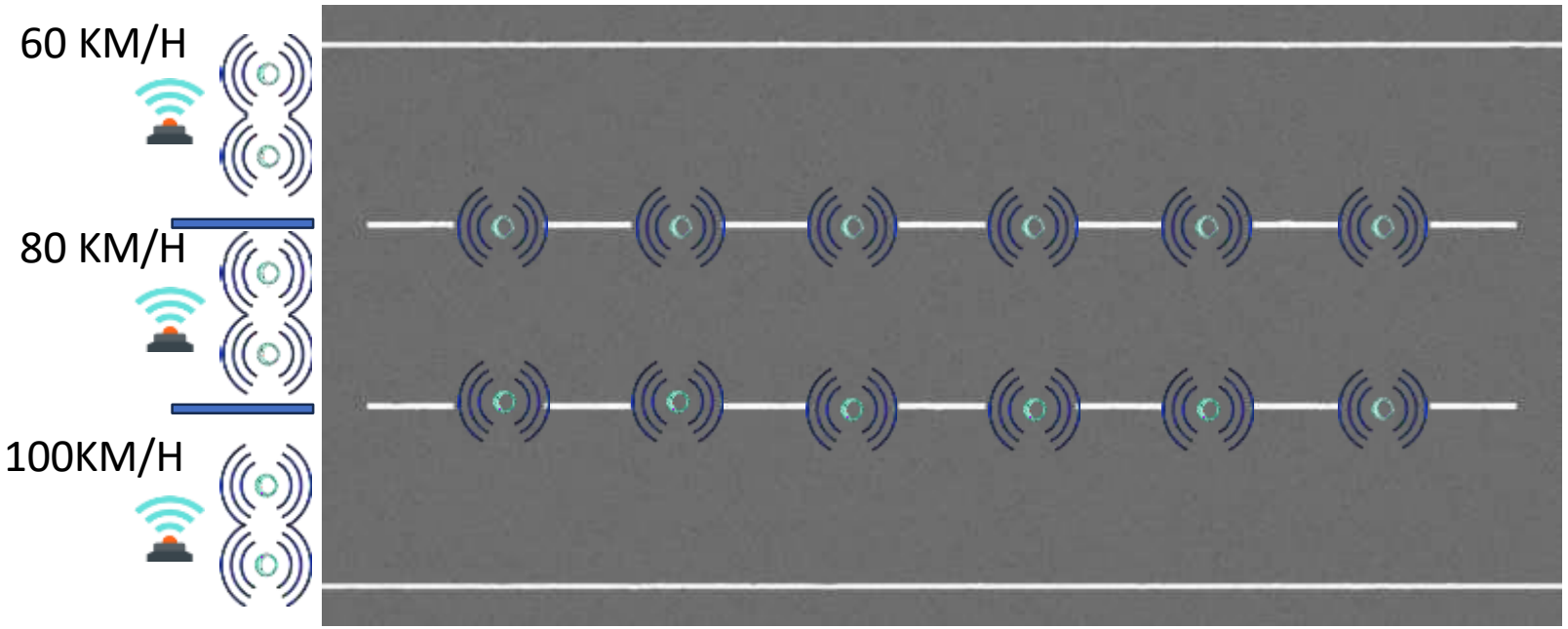
MICROCONTROLLER

SPEED GOVERNOR

ECU

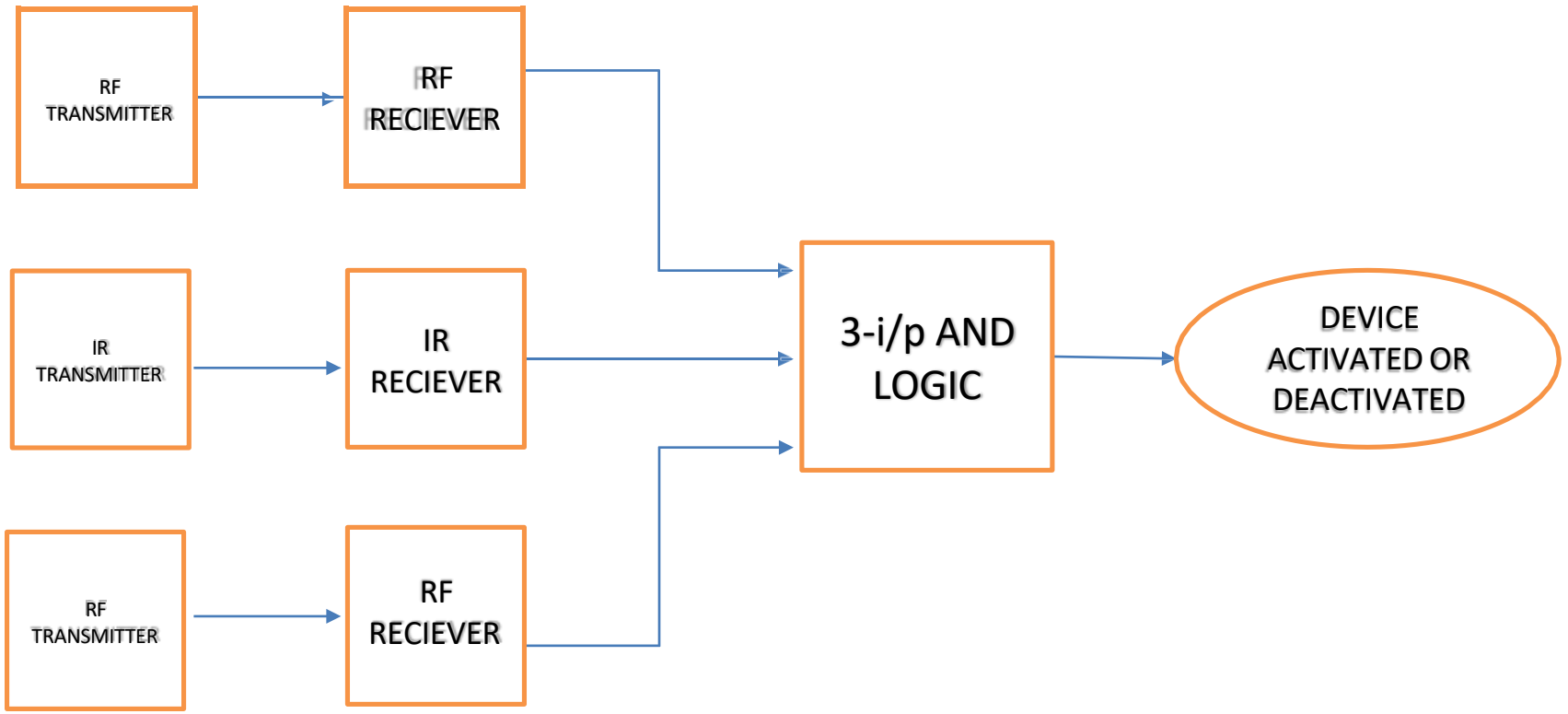
OPERATION

Right RF and IR and Left RF = Activation with speed limited according to RF speed data and deactivation.
Right RF 1st and LEFT RF 2nd = speed increment according to RF data.
LEFT RF 1st and Right RF 2nd = speed decrement according to RF data.

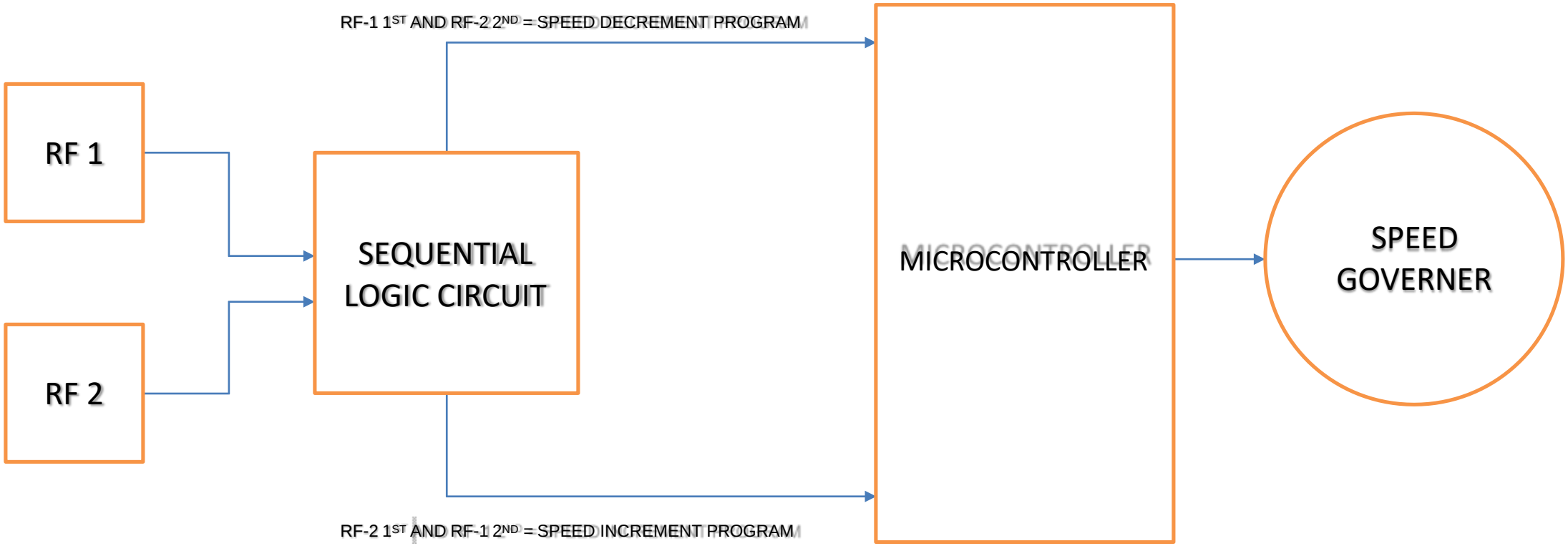


RF transmission with IR sensing for activation and deactivation of speed governor

BLOCK DIAGRAM FOR ACTIVATION AND DEACTIVATION



BLOCK DIAGRAM OF SPEED INCREMENT AND DECREMENT



STATUS OF THE PROJECT

- Basic prototype of the vehicle has been completed.
- DC motor integrated for path adjustment.
- RF transmitter installed on highway model; receiver positioned below the vehicle

Next Steps:

- Prioritize code development to ensure timely completion.
- Initiate testing phase to validate the functionality of the prototype.
- Address any issues or optimizations identified during testing.

CONCLUSION

- Hardware design for the automatic vehicle speed controller and accident avoidance system is completed.
- Focus is now on code development and testing to finalize the prototype.
- Once completed, the system will contribute significantly to enhancing safety on expressways and highways.

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