

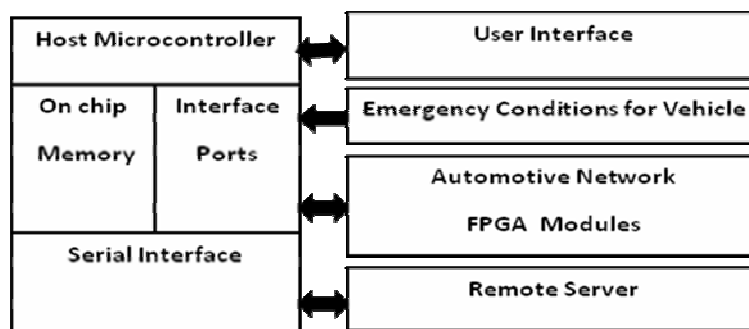
DESIGN APPROACH FOR AUTOMOTIVE BLACK BOX

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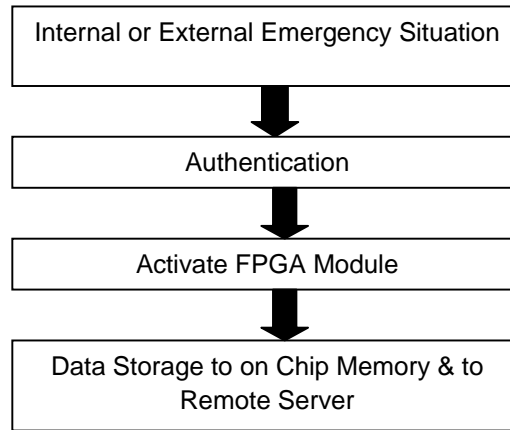
- **Design Methodology:** The researchers are trying to modernize, simplify & standardize the networking and its complexity involved in intra-vehicular communication. Unfortunate incident can take place with vehicle because of external emergency conditions or many times because of internal emergency situations.
- **Block Diagram of Black Box:** Following figure shows the block diagram of Black Box system. The design is centered on the FPGA based intelligent module (LIN, CAN or Flex ray based). The intelligent FPGA module upon activation will fetch the data and will store it memory in the form of data frames.



Block diagram of Black Box System

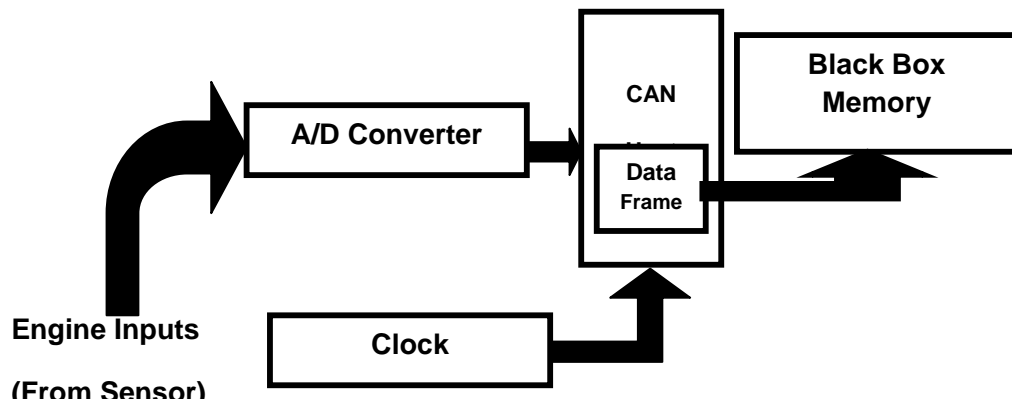
- **Working and Flow Chart of Black Box:** Following flowchart shows the sequence of events for Black Box System. The black box system will look after

for emergency data handling. Thus in internal or external emergency situation, the system will collect data from all the operating network controllers in vehicles which are controlling the embedded applications and activities of vehicle and will pass on the data for storing purpose.



Flow chart of Black Box System

- Design Approach for Automotive Black Box using VLSI Tools:** Automotive black box will be installed in vehicle and will be used to store the data supplied by CAN host downloaded on FPGA. The data thus stored in Black box can be retrieved and can be used for simulating any external or internal emergency situation which has lead to cause of accident. In the implementation, emergency situation is simulated with the help of Analogue to Digital Converter. The design methodology is shown in following figure. The digital signal thus derived from output of ADC is given as input to CAN host FPGA which holds Data frame and directs it to Black box Memory. The black box will store the frame and will make available as and when required.



Block Diagram of Design Methodology