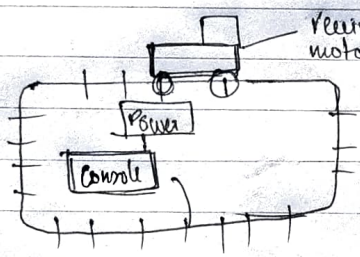
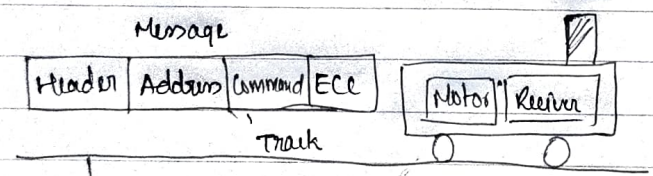
Train controller system

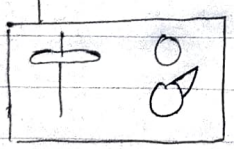
(1) Objects : Console , Train
(2) Commands : set speed, set inertia, Estop.
(3) Console : panel, formatter , transmitter.
(4) Train : receiver , controller , motor interface.

* The conceptual specification allows us to understand the system little better. Writing of conceptual specification will help us to write a detailed specification. Defining the messages will help us understand the functionality of the component. The set of commands that we can use to implement the requirements placed on the system.
* The system console controls the train by sending messages on to the tracks. The transmissions are packitized ; each packet includes an address & a message.



System setup.





Signalling the train.

* The model train controller, which is shown in the figure :
(1) The user sends messages to the train with the control box attached to the tracks.
(2) The control box may have familiar controls such as throttle, emergency stop button & so on.
(3) Since train receives it electrical power from the tracks, the control box can send a signal to the train over the track by modulating the power supply voltage.

(4) The control panels sends packet over the tracks to the receiver on the train. Each packet also includes an error correction code (ECC) to guard against transmission error. This is a one-way communication system the model train cannot send commands back to the user.

Requirements

- The console shall be able to control up to 8 trains into a single track.
- The speed of each train shall be controllable by a throttle to atleast 63 diff. levels in each direction.
- There shall be inertia controll that shall allow the user to adjust the responsiveness of the train to commanded changes in speed. Higher inertia means that the train responds more slowly to change in ~~speed~~ the throttle, simulating the inertia of a large train. The inertia controll will provide atleast 8 diff. levels.
- There shall be an emergency stop button.
- An error detection scheme will be used to transmit messages.