

| Concept 1 |   |                           | Solution           |                            |                |                |
|-----------|---|---------------------------|--------------------|----------------------------|----------------|----------------|
|           |   |                           | A                  | B                          | C              | D              |
| Function  | 1 | Secure Elements           | At rotation point  | In grooves                 |                |                |
|           | 2 | Input from Car (decision) | Driver             | IMU                        | DAQ System     | Engine ECU/CAN |
|           | 3 | output control            | MCU                | Discrete components        |                |                |
|           | 4 | Actuation                 | Stepper motor      | Electronic Linear Actuator | Air Cylinder   | Hand lever     |
|           | 5 | Movement                  | Pulleys and cables | Pulleys and belts          | Straight links | Direct         |
|           | 6 | Position Feedback         | Limit Switches     | Encoders                   | Linear Slides  | physical       |
|           | 7 | Location                  | In endplates       | Outside of endplates       |                |                |

| Concept 2 |   |                   | Solution           |                            |                |                |
|-----------|---|-------------------|--------------------|----------------------------|----------------|----------------|
|           |   |                   | A                  | B                          | C              | D              |
| Function  | 1 | Secure Elements   | At rotation point  | In grooves                 |                |                |
|           | 2 | Input from Car    | Driver             | IMU                        | DAQ System     | Engine ECU/CAN |
|           | 3 | output control    | MCU                | Discrete components        |                |                |
|           | 4 | Actuation         | Stepper motor      | Electronic Linear Actuator | Air Cylinder   | Hand lever     |
|           | 5 | Movement          | Pulleys and cables | Pulleys and belts          | Straight links | Direct         |
|           | 6 | Position Feedback | Limit Switches     | Encoders                   | Linear Slides  | physical       |
|           | 7 | Location          | In endplates       | Outside of endplates       |                |                |

| Concept 3 |   |                   | Solution           |                            |                |                |
|-----------|---|-------------------|--------------------|----------------------------|----------------|----------------|
|           |   |                   | A                  | B                          | C              | D              |
| Function  | 1 | Secure Elements   | At rotation point  | In grooves                 |                |                |
|           | 2 | Input from Car    | Driver             | IMU                        | DAQ System     | Engine ECU/CAN |
|           | 3 | output control    | MCU                | Discrete components        |                |                |
|           | 4 | Actuation         | Stepper motor      | Electronic Linear Actuator | Air Cylinder   | Hand lever     |
|           | 5 | Movement          | Pulleys and cables | Pulleys and belts          | Straight links | Direct         |
|           | 6 | Position Feedback | Limit Switches     | Encoders                   | Linear Slides  | physical       |
|           | 7 | Location          | In endplates       | Outside of endplates       |                |                |

| Concept 4 |   |                   | Solution           |                            |                |                |
|-----------|---|-------------------|--------------------|----------------------------|----------------|----------------|
|           |   |                   | A                  | B                          | C              | D              |
| Function  | 1 | Secure Elements   | At rotation point  | In grooves                 |                |                |
|           | 2 | Input from Car    | Driver             | IMU                        | DAQ System     | Engine ECU/CAN |
|           | 3 | Process Input     | MCU                | Discrete components        |                |                |
|           | 4 | Actuation         | Stepper motor      | Electronic Linear Actuator | Air Cylinder   | Hand lever     |
|           | 5 | Movement          | Pulleys and cables | Pulleys and belts          | Straight links | Direct         |
|           | 6 | Position Feedback | Limit Switches     | Encoders                   | Linear Slides  | physical       |
|           | 7 | Location          | In endplates       | Outside of endplates       |                |                |