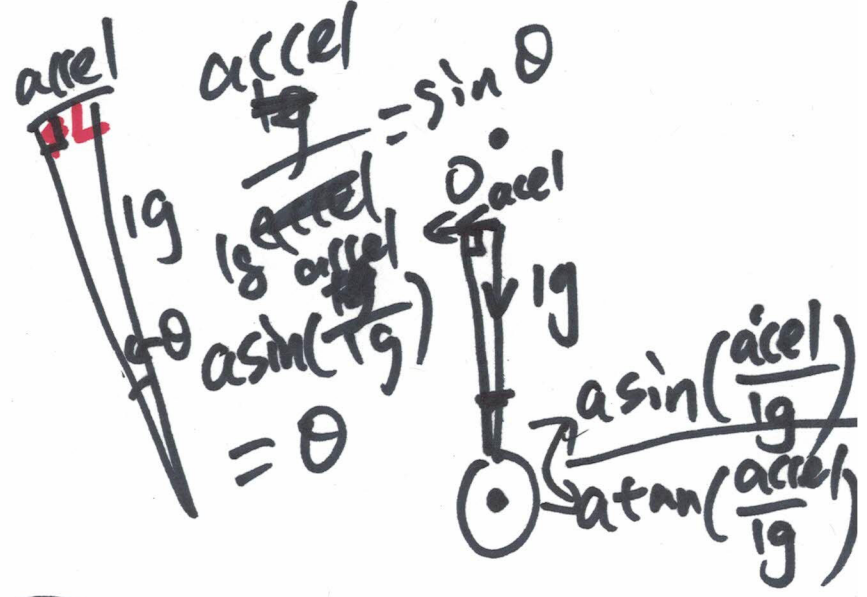
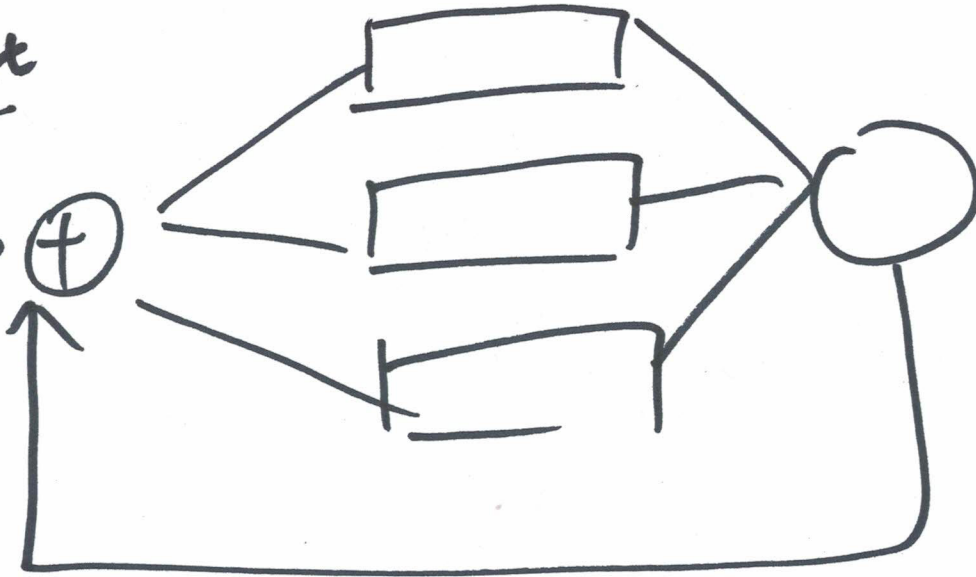


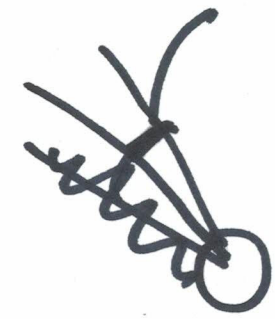
PID_out

$P + I + D = \text{PID_out}$

~~Set-point~~
~~Input~~



$a \sin(\theta)$



① negative feed back

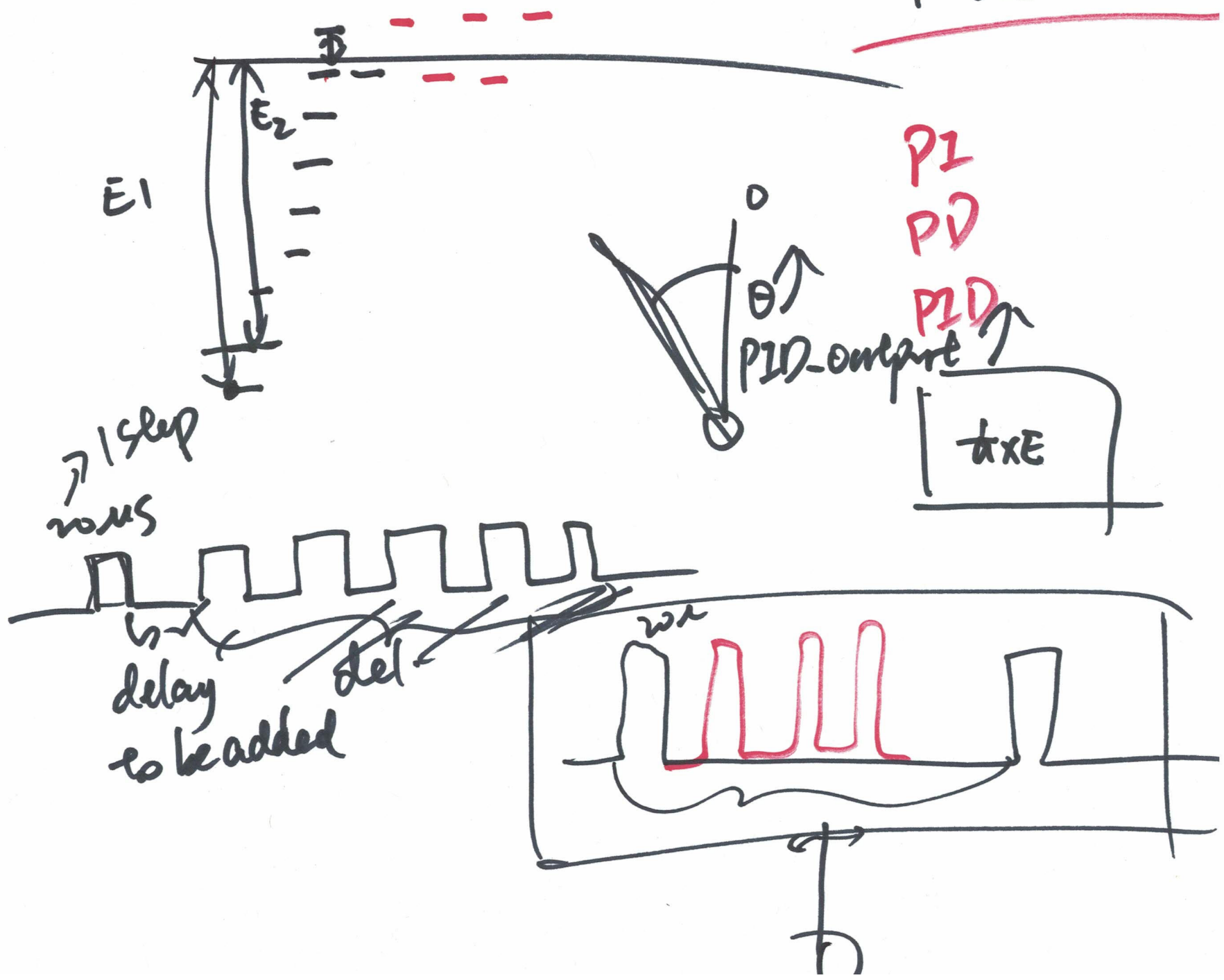
② PID_out \Rightarrow movement of the car

200 steps / 360° 1.8° / step

①

Oscillating

P-controller



2

P2Q output

$$\underline{f'} = \frac{1}{T+X} = \underline{\text{steps/s}} \Rightarrow \text{m/s}$$

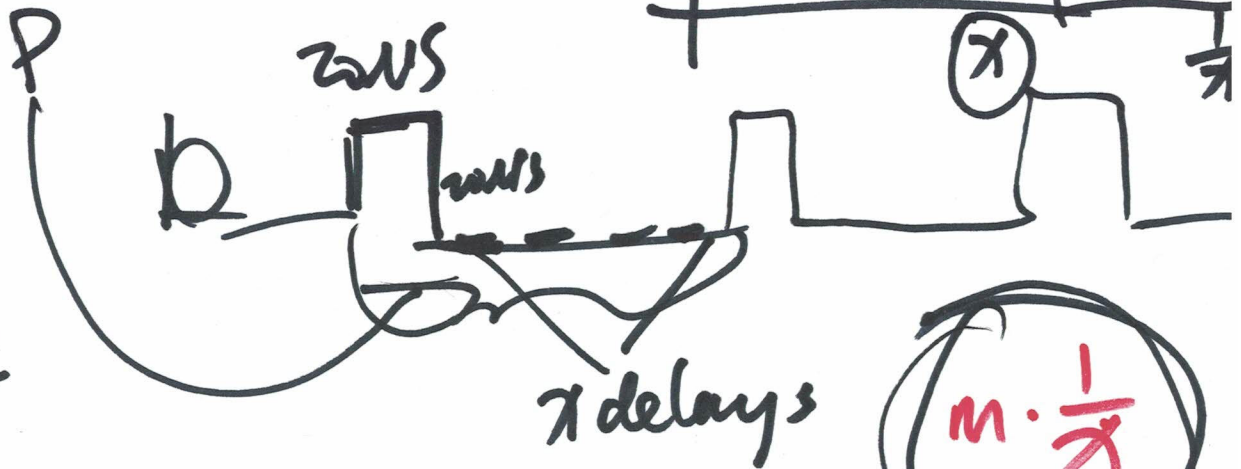
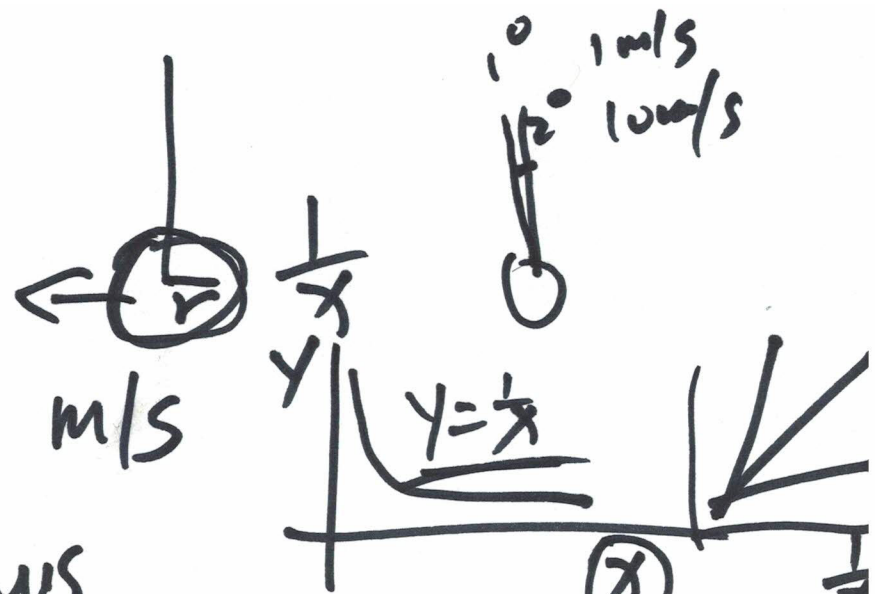
$$\underline{P = 2\pi r (m)}$$

$$\frac{P}{200} = \underline{\text{m/step}}$$

$$\frac{P}{200} \cdot f' = \frac{m}{\cancel{\text{step}}} \cdot \frac{\text{steps}}{s}$$

$$= \text{m/s}$$

$$\frac{P}{200} \cdot \frac{1}{T+X} = \frac{P}{200} \cdot \frac{1}{200\text{ms}(T+X)}$$



$$m \cdot \frac{1}{X}$$

$$m \cdot \frac{P}{200} \cdot \frac{1}{200\text{ms} \cdot X}$$