Controlling a Motor’s Speed and Position

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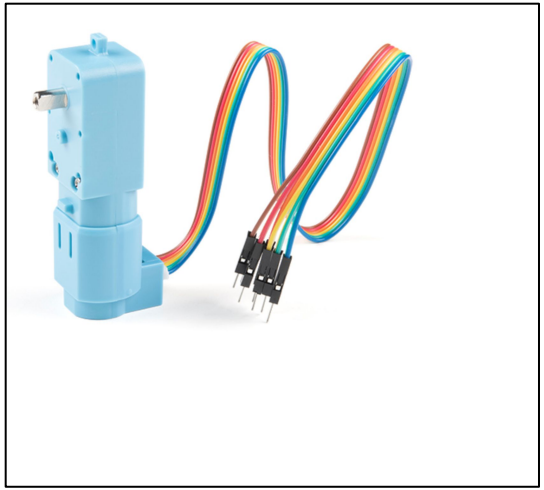
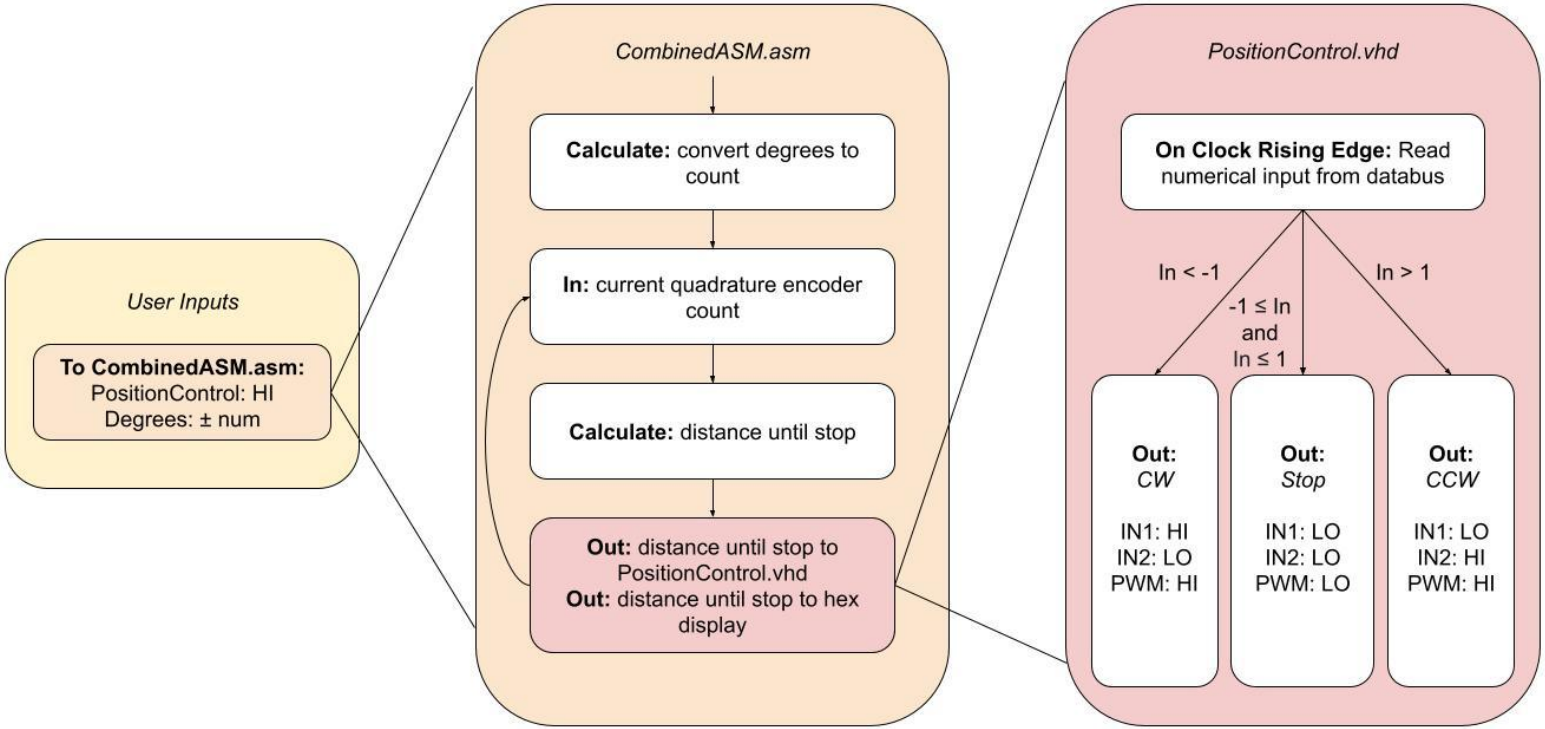
Allowing End-User to Control a Motor

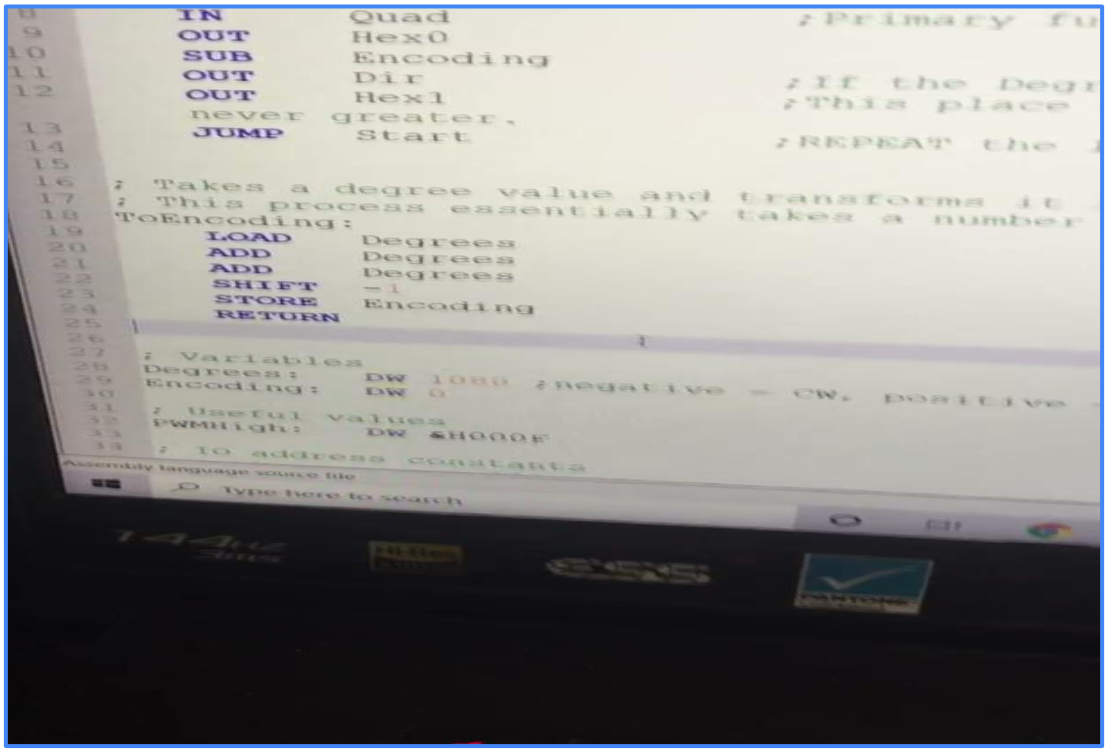
- Goals:
  - Controlling motor position.
    - 16 degree resolution.
    - 8 degrees accuracy.
  - Controlling motor speed.
    - 1 rpm resolution.
    - 5 rpm accuracy.
- User interface
  - SCOMP communications with peripherals.
  - Currently, ASM file.



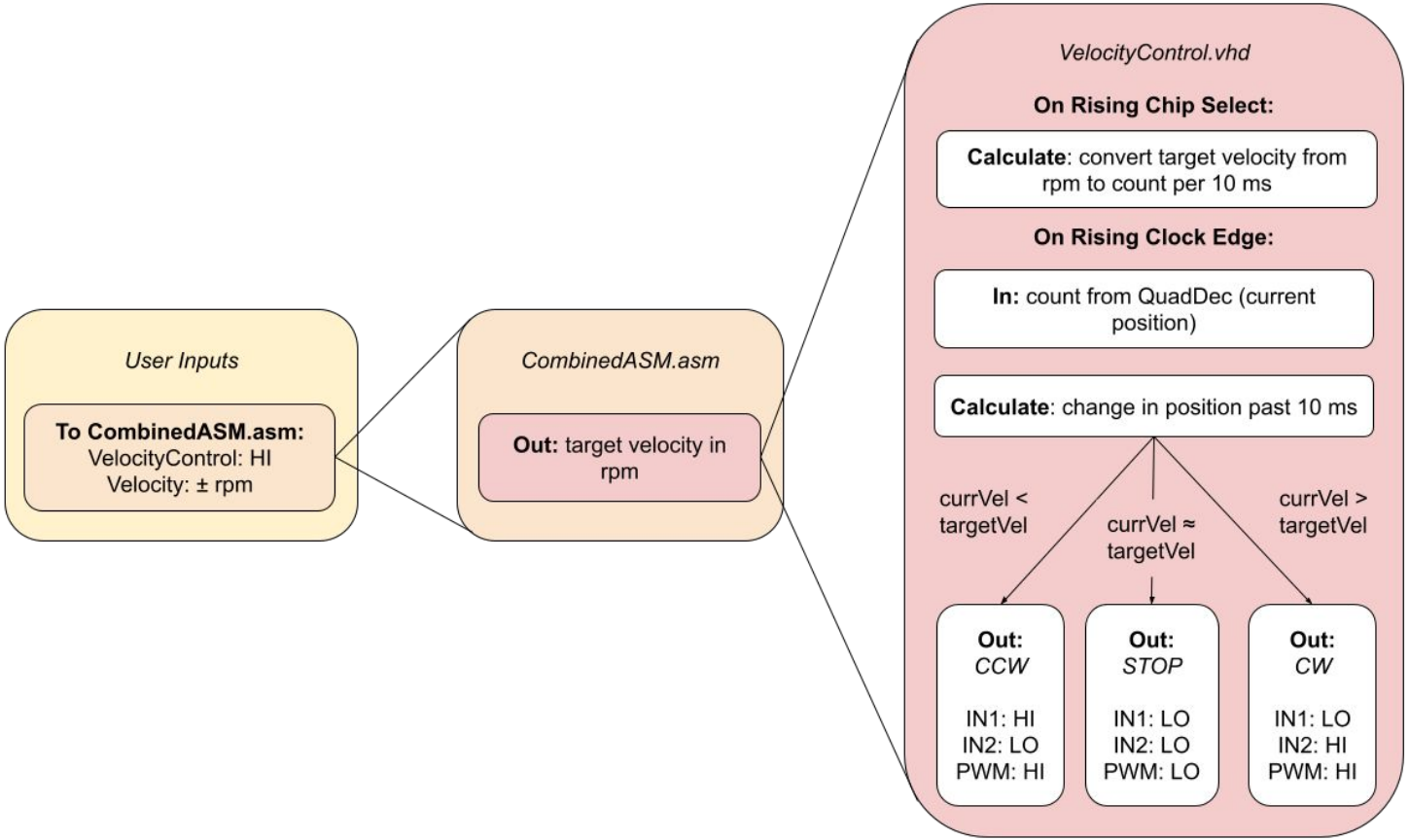
Overview of Position Control



Example of Controlling Position

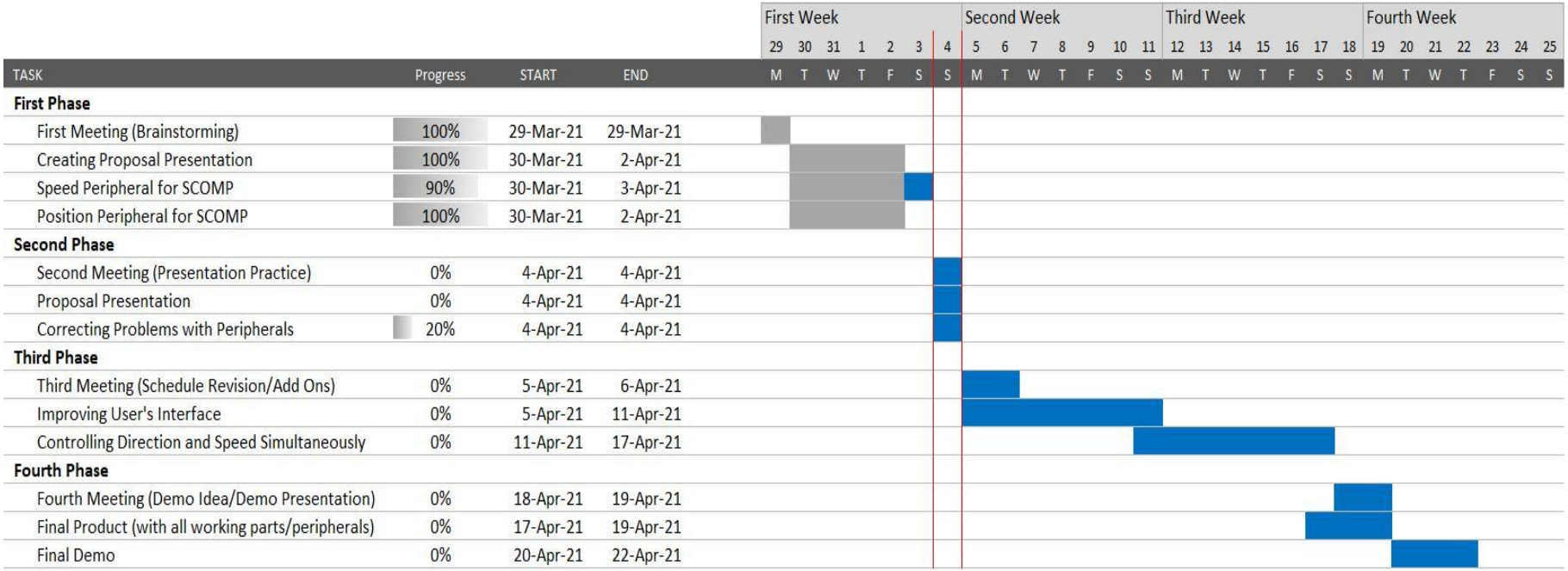


Overview of Velocity Control



Example of Controlling Velocity

Schedule



TASK	Progress	START	END
First Phase			
First Meeting (Brainstorming)	100%	29-Mar-21	29-Mar-21
Creating Proposal Presentation	100%	30-Mar-21	2-Apr-21
Speed Peripheral for SCOMP	90%	30-Mar-21	3-Apr-21
Position Peripheral for SCOMP	100%	30-Mar-21	2-Apr-21
Second Phase			
Second Meeting (Presentation Practice)	0%	4-Apr-21	4-Apr-21
Proposal Presentation	0%	4-Apr-21	4-Apr-21
Correcting Problems with Peripherals	20%	4-Apr-21	4-Apr-21
Third Phase			
Third Meeting (Schedule Revision/Add Ons)	0%	5-Apr-21	6-Apr-21
Improving User's Interface	0%	5-Apr-21	11-Apr-21
Controlling Direction and Speed Simultaneously	0%	11-Apr-21	17-Apr-21
Fourth Phase			
Fourth Meeting (Demo Idea/Demo Presentation)	0%	18-Apr-21	19-Apr-21
Final Product (with all working parts/peripherals)	0%	17-Apr-21	19-Apr-21
Final Demo	0%	20-Apr-21	22-Apr-21

Moving Forward

- Improving user-interface.
  - Switch, Push-Buttons on DE-10.
    - Binary
  - HEX1, HEX0.
  - Demo in real-time is easier.
- Control of both velocity and position.
- Division of labor.
  - Position peripheral progressive implementation.
  - Velocity peripheral progressive implementation.
  - Simultaneous control of both.
- Contingency plan.