

15 points.

### Motor Controller

- 1) Encoder controls the RPM setting which the controller is trying to maintain. (4 points)
- 2) Reasonably good control of the RPM, under varying loads. (3)
- 3) RPM is calculated using provided formula (3)
- 4) RPM is displayed on the LCD (2)
- 5) Presentation skills (3 points)

### LED Cube

- 1) At least three separate modes of operation (flash pattern) for the cube.  
One of the patterns needs to demonstrate and test that each LED is addressable. (7)
- 2) Mode change should be changed by pressing a button, which is properly debounced. (5)
- 3) Presentation skills (3 points)

### Solar Tracker

- 1) Ability to track light. (3 points)
- 2) If light source is insufficient (below a set threshold) servo position is set based on time of day. (3 points)
- 3) Display clock on LCD. (1 points)
- 4) Display angle on LCD. (1 points)
- 5) Ability to set clock using encoder or serial port. (4 points)
- 6) Presentation skills (3 points)

### Dispenser

- 1) Rotates a set number of rotations when opto-interrupter is open. (2 points)
- 2) If opto-interrupter is stuck open, show error message. (3 points)
- 3) Override stuck opto-interrupter with button press. (3 points)
- 4) Encoder sets number of revolutions. (2 points)
- 5) Number of rotations and status message displayed on LCD. (2 points)
- 6) Presentation skills (3 points)