

# Task Performed Last Week

- Collect the data with varying room temperature and cpu load.
- Find the model to correlate the room temperature with cpu load.

# Model 1

Linear Model (depend on range of room temperature)

So,

- for room temp (26-30 degree C)

$$\text{room\_temp} = 13.035 + 0.234 * \text{core\_temp} + 0.003 * \text{freq} - 0.032 * \text{load}$$

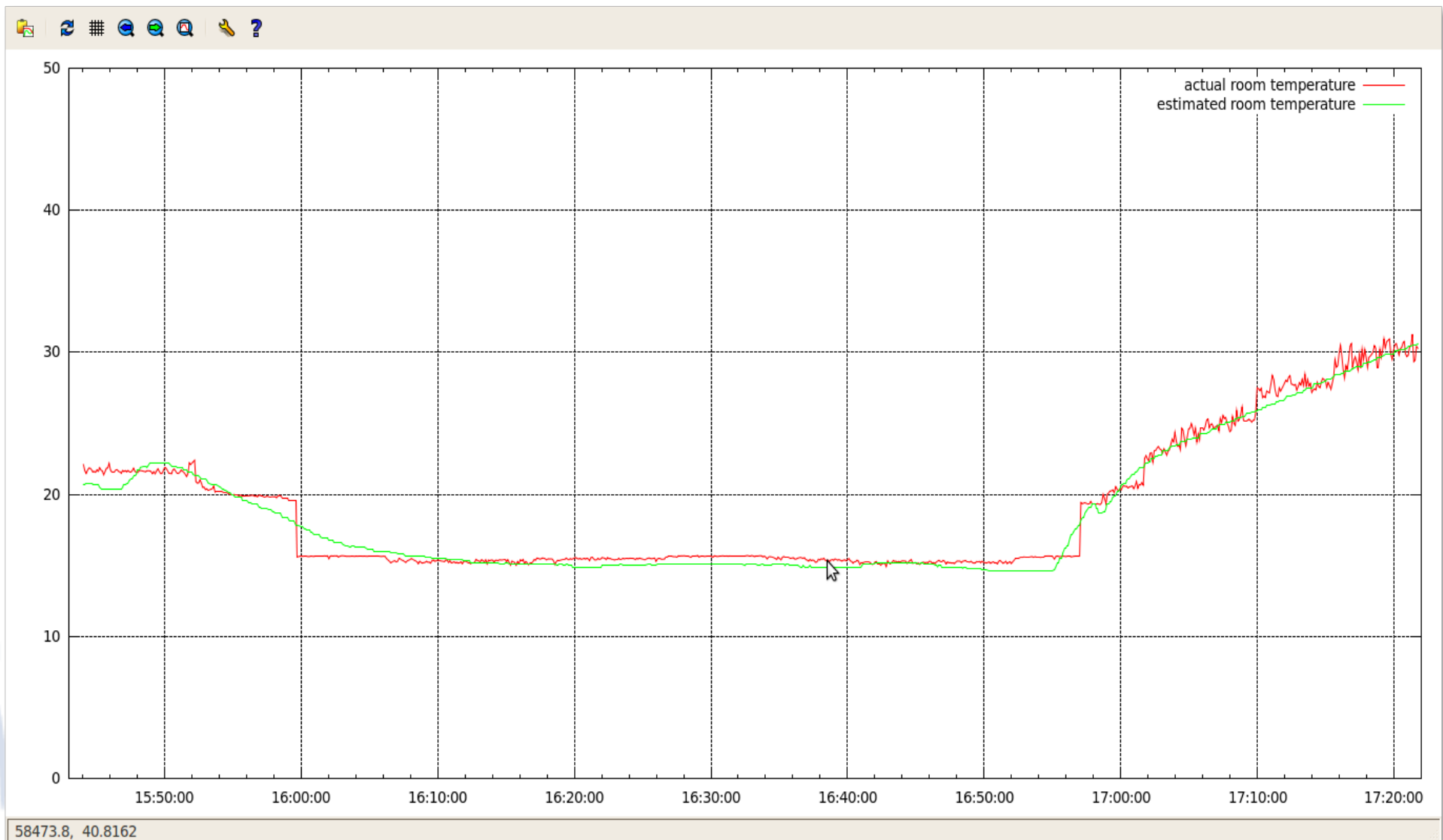
- for room temp (22-26 degree C)

$$\text{room\_temp} = 13.178 + 0.279 * \text{core\_temp} - 0.026 * \text{load}$$

- for room temp (18-22 degree C)

$$\text{room\_temp} = 16.565 + 0.0744 * \text{core\_temp} + 0.001 * \text{freq} - 0.006 * \text{load}$$

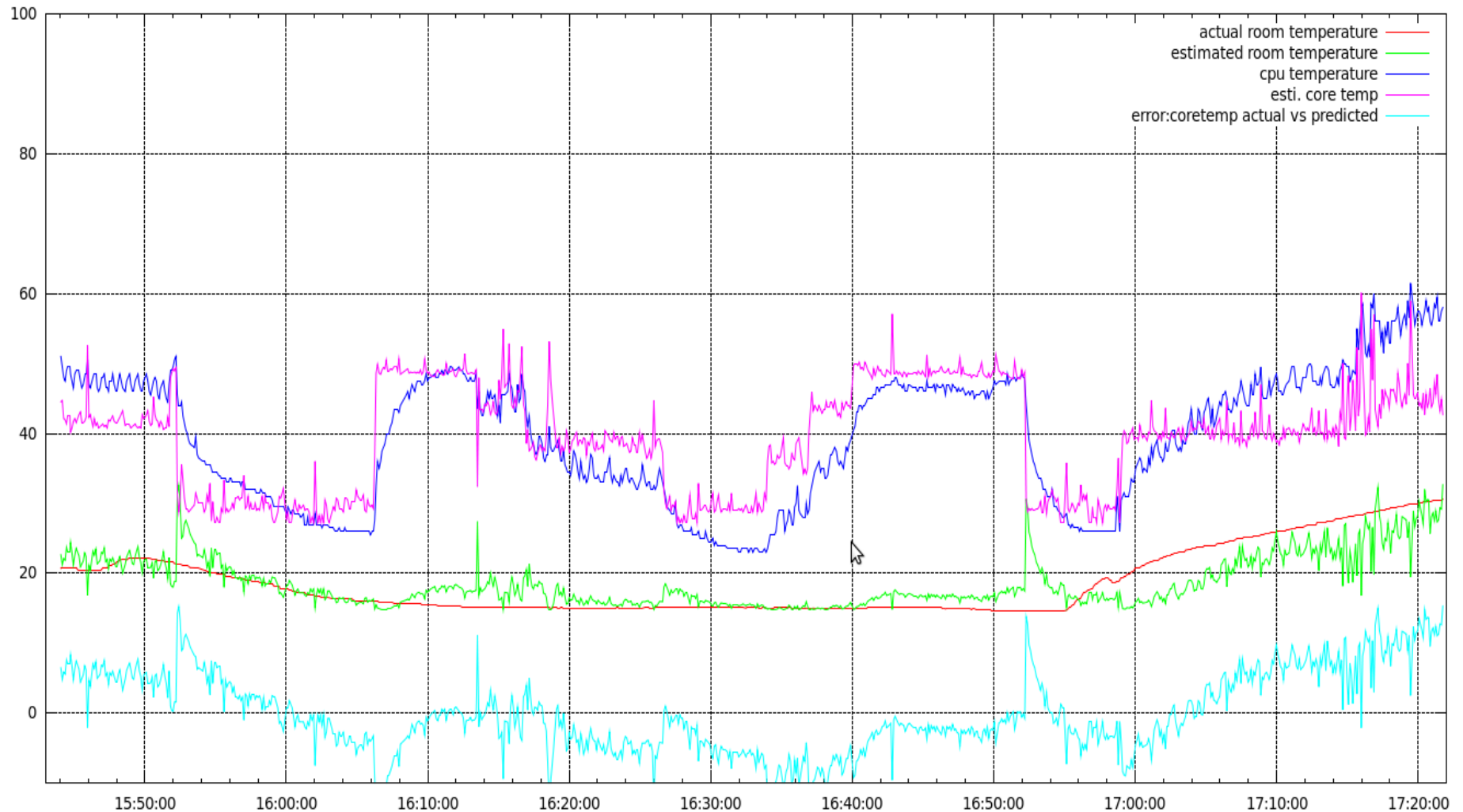
# Room temp vs estimated



## Model 2

- First we calculate the cpu core temperature based on the cpu load only
- Estimated core temp =  $85 - 57.202 * e^{(-0.009 * \text{load})}$
- And then we take the difference b/w the actual and the estimated core temp.
- error = Actual core temp - estimated core temp
- The error correlates the room temperature with value .676
- so room temp.  
 $= 17.883 + 0.568 * \text{error} + 0.026 * \text{error}^2$

# Room temp from model 2



60168.2, 16.7226