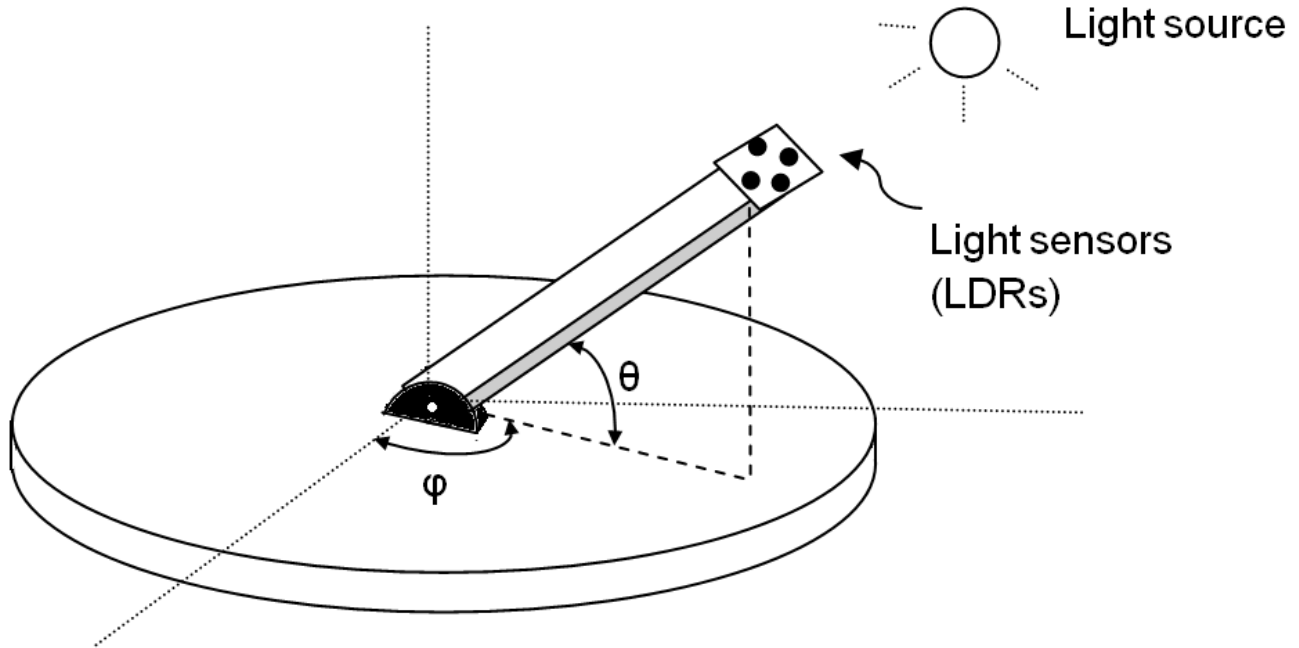


**EP486 Microcontroller Applications**  
**Second Midterm Exam Question**  
**University of Gaziantep, Department of Engineering of Physics**  
**(Deadline: 23/12/2013)**

By using an Arduino board, design and construct a simple Light Tracker as shown in figure given below.



**Requirements:**

- Azimuth angle ( $\varphi$ ) must be controlled by a stepper motor  $[0^\circ, 360^\circ]$ .
- Altitude angle ( $\theta$ ) must be controlled by a servo motor  $[0^\circ, 180^\circ]$ .
- You can use any light sensor (such as LDR).
- You should prepare a GUI program via Processing 2+ to indicate real time measurements of the angles  $\varphi$  and  $\theta$ .
- You should take a video shoot (max 1 min) describing how it works.  
Then, upload the video to youTube and send the link by an e-mail to [bingul\\_at\\_gantep.edu.tr](mailto:bingul_at_gantep.edu.tr).

**Marking:**

- If it works: 40%
- GUI with Processing: 30%
- Response time of the construction: 25%
- Video shoot: 5%