ENG20009
Engineering Technology Inquiry Project

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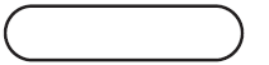
Seminar 2 – Arduino Programming – Flowcharts and Pseudocodes

Topics:
1. Flowchart
2. Examples
3. Pseudocode

1. Introduce Flowcharts

- A flowchart is a diagram that depicts a process, system or computer algorithm and use in the top-down design.
- A tool for developing and documenting algorithms



Terminator

Start or stop a sequence.
May contain module name.

Process

A step in the process or
computational algorithm

Data input

Information from outside of
the algorithm or process

Decision

Choose a flow path for continuing
the algorithm or process

Flow indicators

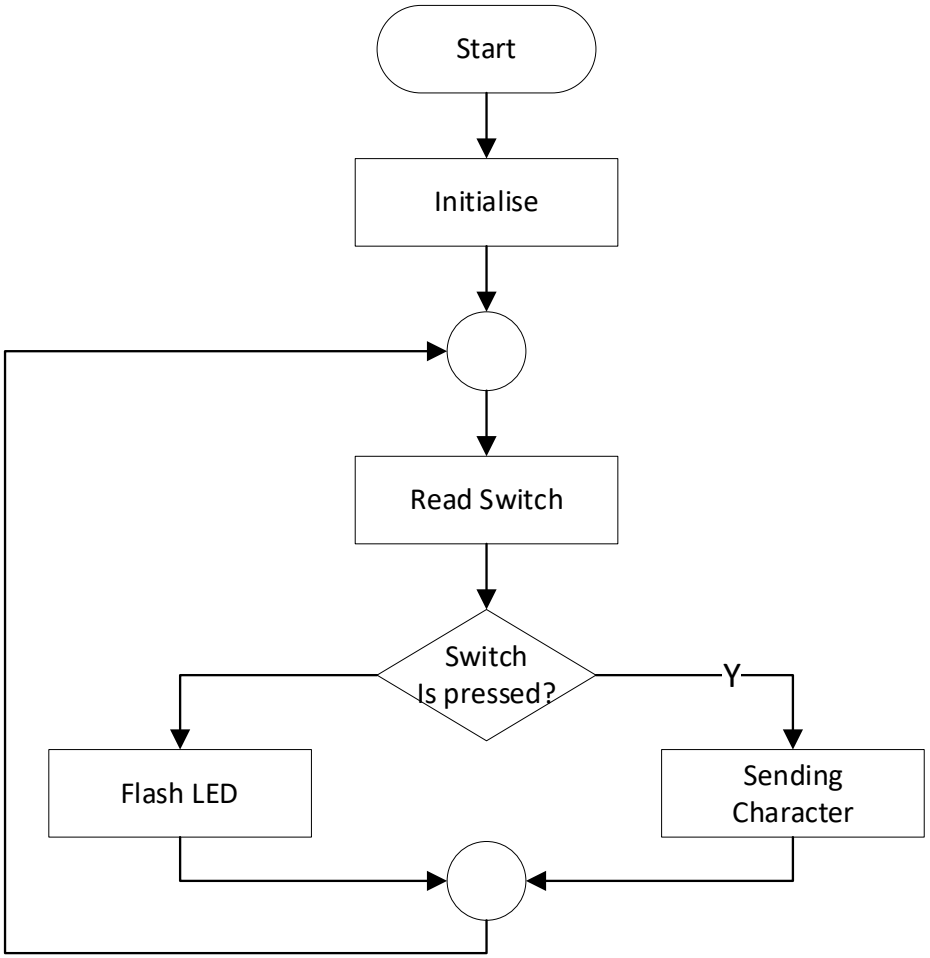
Connect other elements

Connector or Junction

Optional joint where flow
indicators merge

2. Example 1

- Flowchart Keypress



2. Example 1

- Pseudocode Keypress

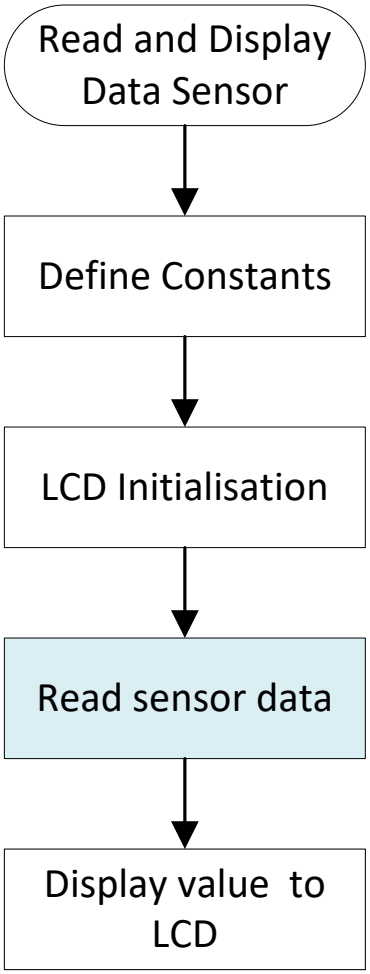
```
setup() {
  prepare arduino for input, output and
sending character
}

void loop() {
   if switch is on {send character} else {flash
led}

}
```

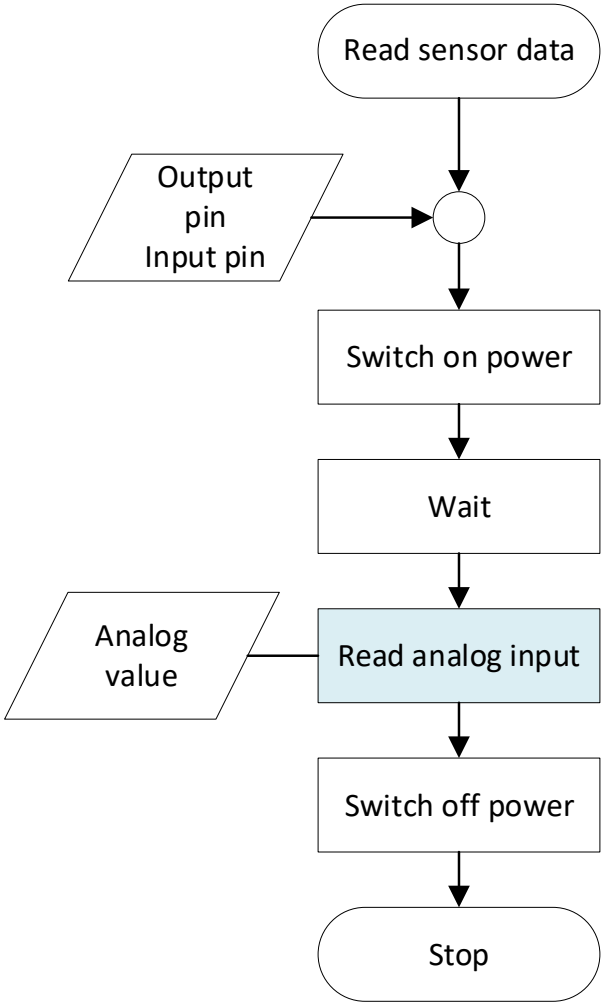
2. Example 2 – top down design

- Draw flowchart to read sensor data and display the average value on the LCD
- Step 1, describe high level actions



2. Example 2

- Step 2, refinement from general to specific



2. Example 2

- Step 3, refinement until individual tasks can be translated into concreate actions