A Study of Chickens, Bees, and Netflix: Insert Descriptive Project Title That Is Concise But Descriptive

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1. PROJECT DESCRIPTION

You will need to have a clear idea for what you are making, why you are making it, and where it fits in with the current state of the art. In the project description section cover:

- What is the purpose of your device? Who will use the system. What are the challenges in developing the device. (paragraph 1)
- Talk about the current state of your development area. What has been done similarly, what will you be doing better. How will you utilize the power of BLE and the sensors to advance the state of the art.

This section needs to be two paragraphs at minimum.

2. SENSORS

Here you will take each sensor one at a time and do an in depth analysis of the sensor specifications, communication protocols, power requirements, dimensions, noise characteristics, accuracy/precision, frequency response, units of measurement and any other relevant information. This will very per sensor. Use your judgement.

2.1 Sensor 1: Awesomiter

Include part number, price, if relevant an image. Each sensor needs to be thoroughly discussed in terms of how it fits in and why you chose it.

2.2 Sensor 2: Memeographer

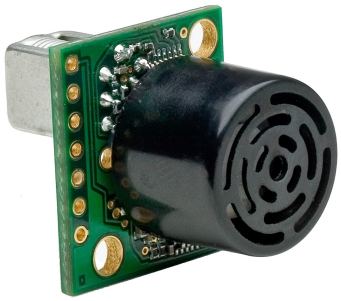

Figure 1: Memeographer sensor

Include part number, price, if relevant an image. Each sensor needs to be thoroughly discussed in terms of how it fits in and why you chose it.

2.3 Sensor 2: Rhombascope

Include part number, price, if relevant an image. Each sensor needs to be thoroughly discussed in terms of how it fits in and why you chose it.

3. SYSTEM DESIGN

Here you will do all of your back of the envelope calculations for power, decide on communication protocols, and make educated size predictions.

3.1 Power Analysis

Include a power systems diagram like in the presentations. A sample table is added below. You should be adding and removing columns as needed depending on your needs to summarize the power requirements of each sensor.

Sensor	I_{min}	V_{min}
Awesomiter	100mA	4.7V
Memographer	3mA	2.0V
Rhombascope	7A	3.3V

Add a paragraph talking about expected usage and how that relates to your power consumption and bat-

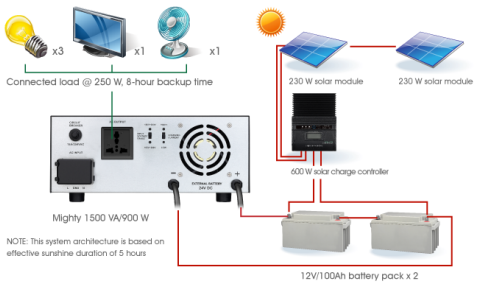

Figure 2: Power Diagram

tery size. Put derivations for ALL calculations here as equations:

$$V = IR \tag{1}$$

Latex is a standard for publications, you can google how to write equations and symbols such as α, β etc.

3.2 Communications

Insert a communications diagram like in the presentations and figure 2. Add a discussion on what sampling frequencies each sensor will be using and relate it to your overall system analysis for power consumption etc. Talk about sleep cycling and how your sampling affects it.

3.3 Enclosure Design

Create a 3D model of your device along with dimensions. This time around you should have selected your sensors and battery based on well thought out power requirement calculations. The 3D render should include all large components. Sensors that are not SMD should be included. Things like the PSoC chip and resistors are not necessary but larger things are. Battery is a must based on dimensions from vendor. Add dimension markers in render.

4. DEVICE FIRMWARE

Here you will put your PSoC firmware deliverables.

4.1 System Diagram

This is a general flow chart of how your system will work. It is meant to be a nice overview of how everything connects on a high level. The diagram will probably be wide so I put an example of how to put a two column image in your document using latex. Check out figure 4. There is no correct or wrong way to do this system diagram.

4.2 Signals Chart

As discussed, you need a signals chart like in 6

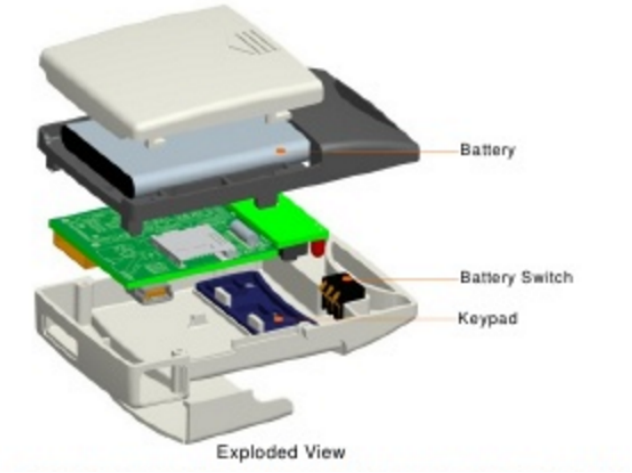

Figure 3: Enclosure and Internals

4.3 State Machine

And you will also need a well designed state machine following the convention put forth over the past two presentations.

5. MOBILE APPLICATION

Same as the presentation add screenshots of a preliminary application. Include a list of features that will be available at the end of the quarter and two case studies outlining how a typical usage of your device will look like.

6. PROJECT BUDGET

Here you should do a detailed cost analysis including pi chart of cost breakdown and a cost for the quarter estimate for the project.

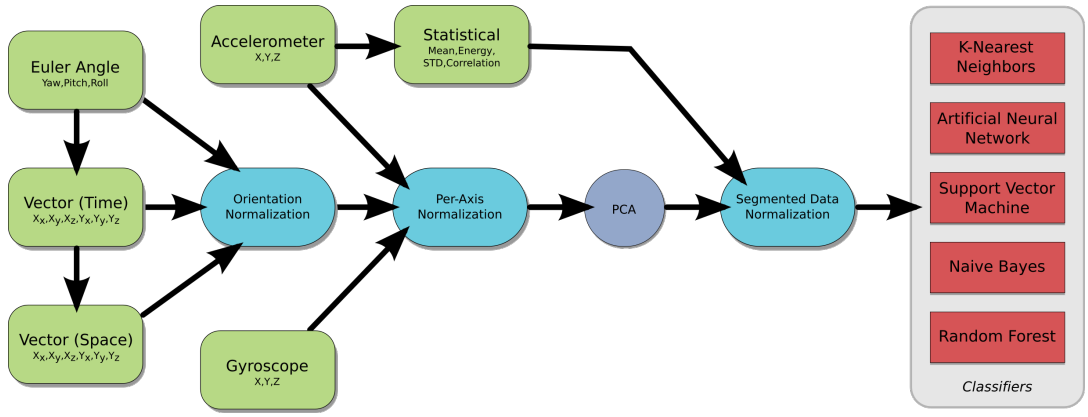

Figure 4: System Overview

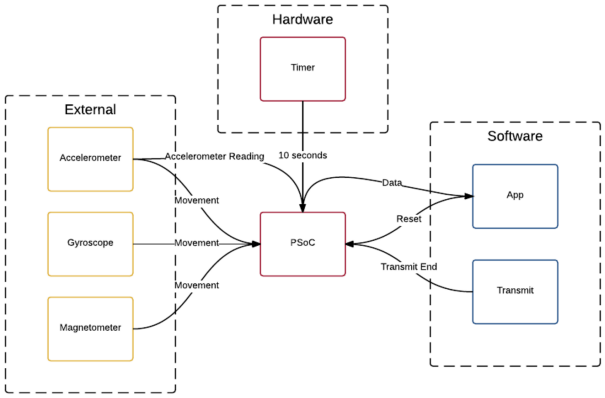

Figure 5: Signals Chart

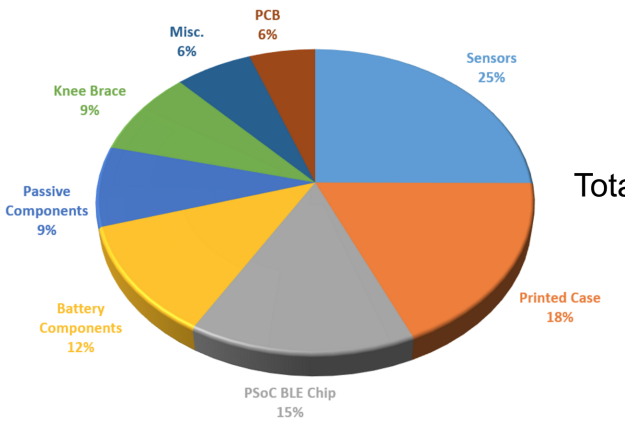

Figure 6: Signals Chart