# Pump Failure Notifier Definition

# Introduction

The remodeled kitchen is to far away from the septic tank for a gravity fed system. Therefore a sump pump will be used to pump water from the kitchen to the septic tank. However if the pump ever breaks down there needs to be a way to signal that to people.

Conventions

Red Text: A To-Be-Determined requirement.

[ ... ]: Future Feature. Color et by the Identifier element type

# Product Characteristics

* Weight: < 1/2ilb
* Height (X): 1/2in
* Length (Y): 1in
* Width (Z): 1in
* Target Cost: ~$100 - $200
* Product Life Time Target: 30 years
* Indoor Operating Temperature: ??
* Outdoor Operating Temperature: ??

# Device: Sensor

## Pump Failure Detector

Characteristics

* Will use the overflow outlet as a sense point
* Min flow to be detected: sink faucet at full flow
* Must survive freezing temperatures up to a week

# Device: Notifier

# Feature List

## Light Indicator

Characteristics

* Initial indicator
* Must last for life time of the product
* Color: Red

## Buzzer

Characteristics

* Secondary Indicator
* Noticeable

## Reset Button

Characteristics

* SPST
* External Accessible
* Same size as Light Indicator

## Processing

Characteristics

* Handles logic to turn on the light and buzzer

## Power Brick

Characteristics

* Provides power to the Notifier and Sensor
* British Standard plug
* Internal Power Supply

# Interface List

Sensor <--> Notifier Characteristics

* DC On/Off signal
* Provides Power to the sensor

# Mechanical

* waterproof for out side components
* Label reset button as "Reset"
* Indoor parts needs to be paintable
* Wall Mounted

# Behavior Definition

## Processes

## Notification

Behavior

* Immediate notification is not needed
* Light should blink at a rate of .5Hz
* After a time out secondary signal should sound

## Secondary Indicator Timer

Behavior

* This timer turns on when over flow is detected. When it times out the secondary indicator turn on.

# Product States

* NORMAL
* ALERT
* SECONDARY ALERT

# Use Cases

## User sees Light Indicator or hears buzzer

1. User presses Reset Button to turn off inidicators
2. User turns off all water using devices in the kitchen like the faucet or dish washer etc
3. User contact the family and informs them of the situation

# Detailed Behavior

## Initial State: NORMAL

## Overflow water is detected

1. Turn on Light Indicator
2. Start Secondary Indicator Timer
3. got to ALERT State

## Initial State: ALERT

## Reset Button is pressed

1. Turn off Light Indicator
2. Go to NORMAL State

## Secondary Inidicator Timer times out

1. Turn on Buzzer
2. Go to SECONDARY ALERT

## Initial State: SECONDARY ALERT

## Reset Button is pressed

1. Turn off Light Indicator
2. Turn off Buzzer
3. got to NORMAL State

# Appendices

Appendix A: Glossary

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| ***Term*** | ***Descrition*** |