



BRIGHAM YOUNG UNIVERSITY  
AUVSI CAPSTONE TEAM (TEAM 45)

---

## Concept Selection

---

ID	Rev.	Date	Description	Author	Checked By
CS-002	0.1	10-24-2018	Initial release	Tyler Miller	CHECKED BY

## 1 Base Concept Selection

Requirement	Autonomous w/ gimbal	Autonomous w/o gimbal	Manual w/ gimbal	Manual w/p gimbal
Detect shapes, shape color, letter and letter color				

## 2 Camera Concept Selection

Requirement	Weight	Basler Ace	Basler Ace Increased Focal	PtGrey Chameleon 3	Sony a6000
Resolution	3	2	2	1	5
Weight	1	3	3	5	2
Ease of System Integration	3	5	5	5	3
Clarity @ 150ft	5	1	4	4	5
Stability @ 150ft	5	1	1	2	5
Cost	2	5	1	4	3
Capture Rate	2	3	3	5	2
<b>TOTAL</b>		<b>50</b>	<b>57</b>	<b>71</b>	<b>86</b>

### 3 Measured Camera Values

	Basler Ace	Basler Ace Increased Focal	PtGrey Chameleon 3	Sony a6000
<b>Description</b>	Baseline. The camera from last year with a 12.5mm focal length lens	Last years Basler with a 35mm focal length lens. This decreases field of view, but increases pixels/inch.	Camera from two years ago. Powerful lens, but low Resolution	Camera most commonly used by other AUVSI teams. Low cost, and high resolution
<b>Resolution</b>	5MP	5MP	1.3MP	24MP
<b>Weight</b>	217g	250g	55g	410g
<b>Ease of System Integration</b>	Integrated	Integrated	Previously Integrated	Feasible
<b>Clarity</b>	Blurry, readable	Likely blurry, readable	Readable	Readable
<b>Stability</b>	Target unreadable	Target likely unreadable	Target unreadable	Target readable
<b>Cost</b>	\$0	\$600	\$310	\$550
<b>Capture Rate</b>	5Hz	5Hz	30Hz	1Hz